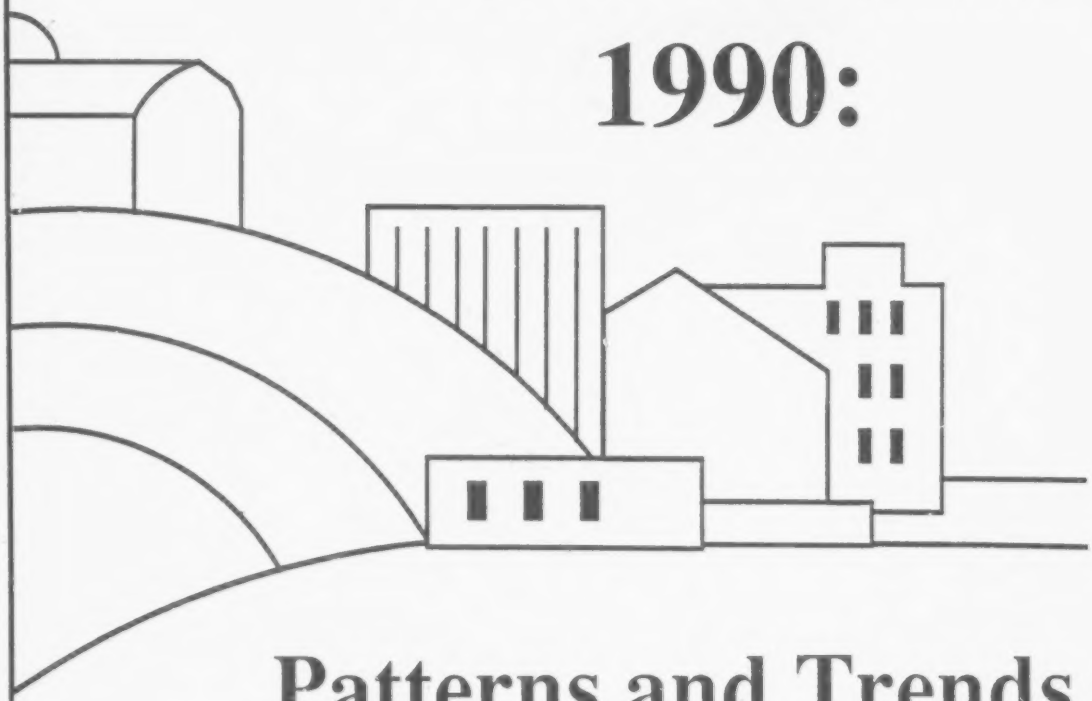
Agricultural Economics Statistical Series Report No. 46
(North Dakota Census Data Center Report Series No. 12)

September 1990

North Dakota 1990:



Patterns and Trends

in Economic Activity and Population

F. Larry Leistritz
Janet Wanzek
Rita R. Hamm

Department of Agricultural Economics
Agricultural Experiment Station
North Dakota State University
Fargo, North Dakota 58105

Acknowledgments

The information in this report was assembled through the combined efforts of a number of people and organizations. First, we express our appreciation to the Center for Rural Revitalization and to the Institute for Business and Industry Development at North Dakota State University for their partial financial support of the study and to Ronald Anderson and Wallace Eide of those organizations, respectively, for their support and encouragement. Our thanks also go to the Cooperative State Research Service (CSRS) of the U.S. Department of Agriculture for partial financial support and to Dr. Richard Stuby of CSRS for his personal encouragement.

Our thanks also go to Sharon Hilber for her editorial and graphics assistance and to Carol Jensen who typed the manuscript. We also thank our colleagues in the Department of Agricultural Economics for their helpful reviews.

The authors accept sole responsibility for any remaining errors or omissions.

Table of Contents

	Page
List of Tables	iii
List of Appendix Tables	iii
List of Figures	iii
Procedures	1
Employment Change	2
Population Change	3
Per Capita Income	4
Purchasing Power of Trade Area Residents	5
Retail Sales	6
Full Factors	7
Summary	8
References	9
Appendix	11

List of Tables

Table		Page
1	Average Annual Employment and Percent Change in Average Annual Employment, North Dakota, 1980-89, by Region	3
2	Changes in Nominal and Deflated Taxable Sales and Purchases by City Size Group, North Dakota, 1980-89 and 1987-89	6

List of Appendix Tables

Table		Page
1	Average Annual Employment, North Dakota Counties and Regions, 1980-89	13
2	County Populations for Years 1980, 1982, 1984, 1986, 1987, and 1988	15
3	City and Trade Area Populations by Population Size Group 1980 and 1988	17
4	Per Capita Income in 1979 and Estimates of Per Capita Income for 1987 for North Dakota Counties	20
5	Trade Area Purchasing Power, Nominal and Deflated, 1980 and 1988, for North Dakota Communities	21
6	Nominal Taxable Sales and Purchases by Population Size Group	23
7	Deflated Taxable Sales and Purchases by Population Size Group	26
8	Pull Factors by Population Size Group	29

List of Figures

Figure		Page
1	Average Annual Employment, North Dakota Counties and Regions, 1980-89	2
2	County Populations for 1980-88	4
3	Per Capita Income in North Dakota, 1987	5

North Dakota 1990: Patterns and Trends in Economic Activity and Population

F. Larry Leistritz, Janet Wanzek, and Rita R. Hamm*

Trends in economic activity, often measured by changes in the number of jobs, retail sales volume, and income levels, are always a topic of great interest to policy makers and business executives as well as to the general public. In North Dakota this interest has been heightened in recent years by the economic dislocations associated with the effects of economic stress and drought on the farm economy and the impact of falling world oil prices on the energy sector. These forces have resulted in less positive trends in employment, income, retail sales, and population than those experienced during the 1970s. However, these changes have not affected all parts of the state equally. Some regions and communities have fared better than others.

To provide interested persons with the most current information concerning economic trends in their communities and regions, the Department of Agricultural Economics at North Dakota State University has prepared three reports (Mortensen and Leistritz 1988 a, b; Mortensen et al. 1989). This report, the fourth in the series, summarizes recent changes in employment (through 1989), retail sales (through 1989), population (through 1988), and per capita income (through 1987) for counties and towns in North Dakota. As in previous reports, the information is given at the county level and for towns with a 1980 population over 200. (Employment data are available only for counties.) County data are summarized geographically for eight state planning regions, and data for towns are summarized by six population size groups.

Procedures

Data used in the analysis were drawn from secondary sources (see References). Data for taxable retail sales were from the North Dakota Tax Department, population data were from the U.S. Bureau of the Census, and employment data were from Job Service of North Dakota. Per capita income estimates for towns and townships came from the U.S. Bureau of the Census, while per capita income estimates for counties were obtained from the Bureau of Economic Analysis, U.S. Department of Commerce. Data for taxable retail sales and per capita income were converted to constant dollars (i.e., adjusted for inflation) using the consumer price index (U.S. Department of Labor).

The remainder of this report is organized into six sections. First, changes in average annual employment for counties and state planning regions are examined for the periods 1980-89 and 1988-89. Then, estimated changes in population for counties and cities for the period 1980-88 are summarized, and trade area populations are calculated for those towns for which trade area maps had previously been prepared. (Trade area maps have been prepared for more than 100 North Dakota towns and cities by the NDSU Extension Service.) The third section reports changes in per capita income for counties and cities. Information about changes in population and per capita income is then used to compute estimates of trade area purchasing power. The fifth section reports changes in taxable retail sales for the period 1980-89. The data on taxable sales are then used, together with the population and per capita income estimates, to estimate pull factors for communities with trade area maps.

---

*The authors are, respectively, professor and research assistant, Department of Agricultural Economics, and research assistant, North Dakota State Census Data Center, North Dakota State University, Fargo.

Employment Change

Average annual employment in North Dakota increased by about 10 percent from 1980 to 1989 (Appendix Table 1). This employment growth was not distributed evenly across the state, however. Only 13 of the state's 53 counties had a net employment gain during the 1980s, while the remaining 40 counties recorded a net loss of jobs (Figure 1). When employment changes are examined on a regional basis, three of the eight state planning regions are found to have substantial employment growth while the number of jobs in each of the other five regions declined during the 1980s (Table 1).

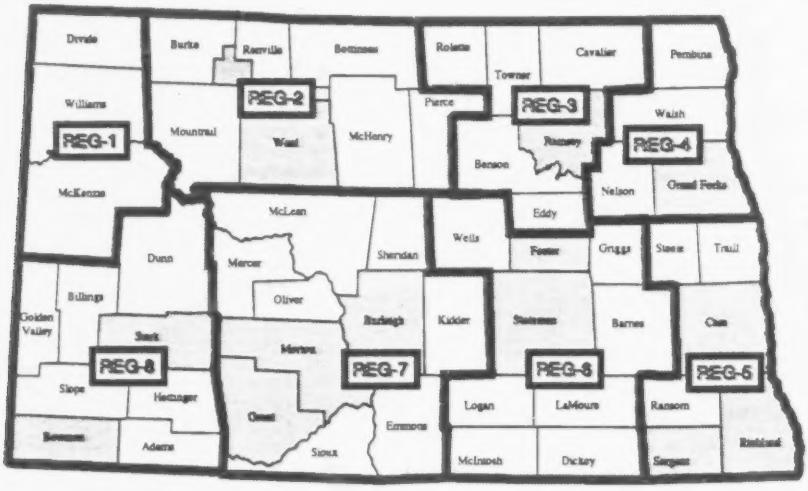


Figure 1. Average Annual Employment, North Dakota Counties and Regions, 1980-89

Counties with employment growth, 1980-89

Counties with employment declines, 1980-89

Examination of employment data for individual counties reveals that the counties with the greatest percentage job growth from 1980 to 1989 were Cass, Grand Forks, Burleigh, and Ward. These counties, which contain the state's four largest trade centers, have been increasing their dominance as regional trade and service centers during the 1980s. Counties that suffered the greatest loss of jobs during the 1980s included those in which petroleum exploration and extraction was an important industry (for example, McKenzie, Billings, Dunn, Burke, and Slope). Other counties with net employment losses exceeding 20 percent were generally remote agricultural counties which did not have major trade centers (for example, McHenry, Renville, Cavalier, Nelson, and Steele).

Employment changes for the period 1988-89 followed a pattern similar to those for 1980-89. The three regions with net gains in employment were the same regions that registered net gains for the decade. Individual counties with major job growth included Cass, Burleigh, and Grand Forks. Burleigh County recorded the largest percentage growth in employment for 1988-89.

TABLE 1. AVERAGE ANNUAL EMPLOYMENT AND PERCENT CHANGE IN AVERAGE ANNUAL EMPLOYMENT, NORTH DAKOTA, 1980-89, BY REGION

	Average Annual Employment			Percent Change	
Region	1980	1988	1989	1980-89	1988-89
1	17,601	15,003	14,785	-16.0	-1.4
2	38,612	38,491	38,168	-1.2	-0.8
3	19,930	18,945	18,729	-6.0	-1.1
4	40,222	49,200	49,391	+22.8	+0.4
5	61,361	78,960	79,930	+30.3	+1.2
6	33,093	32,361	32,302	-2.4	-0.2
7	55,664	62,522	63,565	+14.2	+1.7
8	21,519	20,518	20,130	-6.4	-1.9
State	288,002	316,000	317,000	+10.1	+0.3

SOURCE: Job Service North Dakota, Research and Statistics Division, North Dakota Labor Force by County, by Region, Bismarck, various issues. The employment data is an estimate of all employment in the state.

While the increases in employment summarized in Appendix Table 1 appear to indicate that substantial economic growth has occurred statewide, the reader is cautioned that the employment figures may overstate the extent of economic growth that has occurred. The reason for this potential overstatement is that the employment estimates are a count of jobs, not employed persons, whereas there has been a shift from full-time to part-time jobs in recent years (Job Service North Dakota 1987). If an employer replaces a full-time position with two part-time ones, employment in the industry would show a net increase of one, even though the number of hours worked and wages paid might be unchanged.

Population Change

Patterns of population change across the state were similar to those for employment (Appendix Table 2). Substantial population growth occurred in Regions 5, 7, and 4, while Region 1 also showed a gain of 3.8 percent, or 1,237 persons, from 1980 to 1988. Statewide, population is estimated to have increased by about 34,000 persons or 5.3 percent from 1980 to 1984, followed by a decline of about 20,000 persons or 2.9 percent from 1984 to 1988. Overall, 15 counties registered population gains for the 1980-88 period (Figure 2). In general, three major patterns of population change can be observed. Major trade center counties generally recorded population gains, and for most, growth was relatively steady through the 1980-88 period (for example, Cass, Burleigh, and Grand Forks Counties). Counties that were substantially affected by energy development often had rapid growth early in the decade, with population peaking in 1982 or 1984, followed by population decreases. Most other counties have shown a pattern of moderate population decline throughout the decade.

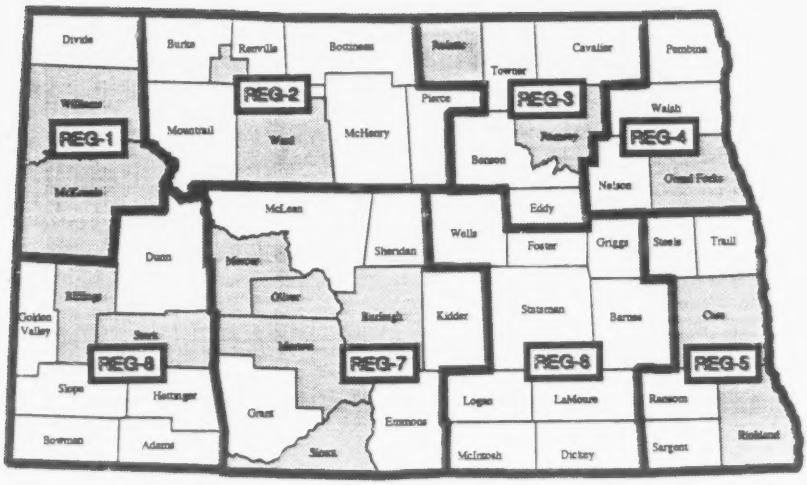


Figure 2. County Populations for 1980-88

Counties with population growth, 1980-88

Counties with population decline, 1980-88

Population changes for individual cities are summarized in Appendix Table 3. In this table, cities are grouped according to their population in 1980. Of the towns with populations of 10,000 or more in 1980, all but two experienced population growth between 1980 and 1988.

Trade area populations were computed for those towns for which trade area maps had previously been prepared (NDSU Extension Service). Estimated trade area populations for 1980 and 1988 are shown in Appendix Table 3 for six of the nine cities in the largest size group. All but one had growing trade area populations during the period 1980-88. Among the state's smaller communities, declining city and trade area populations were more frequently observed than population growth. Of the towns with populations of 2,500 to 10,000 in 1980, two-thirds had declining city populations, and all but two had declining trade area populations during the period 1980-88. The group as a whole showed an increase in their city population, but most of this growth occurred in Beulah, where population nearly doubled as three major coal conversion plants were developed. Among towns with populations between 1,500 and 2,500 in 1980, less than one-fourth had population growth during the period 1980-88. The percentage was even lower (12.5 percent) for towns with 1980 populations between 1,000 and 1,500.

Per Capita Income

Changes in per capita income from 1979 to 1987 are summarized by county in Appendix Table 4, and the relative levels of per capita income in 1987 are summarized in Figure 3. Expressed in nominal dollars, per capita income increased about 50 percent statewide over the 8-year period. When changes in purchasing power resulting from inflation are taken into account, however, the real (deflated) value of per capita income declined by 4 percent. North Dakota also lost ground compared to other states during this period; its rank among the states dropped from 36th in 1979 to 40th in 1987 (U.S. Department of Commerce 1990).

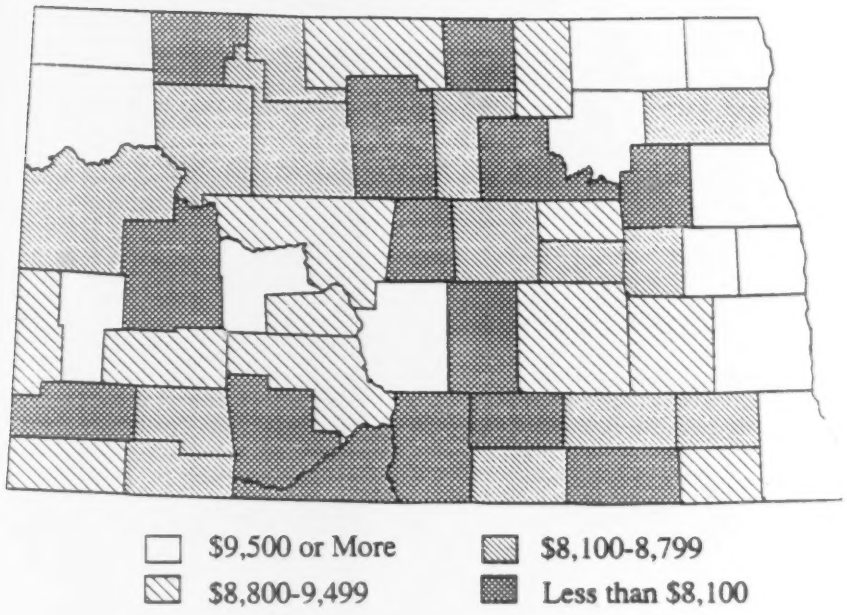


Figure 3. Per Capita Income in North Dakota, 1987

SOURCE: Appendix Table 4

The counties with the highest per capita income in 1987 included some with major trade centers (i.e., Burleigh and Cass), others for which the energy sectors are economically important (Billings, Mercer, Williams, and Divide), and still others that are primarily agriculturally based (Cavalier, Richland, and Steele). Thus, no clear pattern is evident with respect to the community characteristics associated with high per capita incomes.

Purchasing Power of Trade Area Residents

Changes in population and per capita income reflect alterations in the potential purchasing power of the residents of various communities' trade areas. Estimates of the purchasing power of persons living in the trade areas of 123 towns are shown in Appendix Table 5. These estimates were developed by multiplying 1979 per capita income by 1980 population and 1987 per capita income by 1988 population for each town and township in the state and then summing the values for all towns and townships in a given trade area. The estimates of purchasing power were then converted to 1988 constant dollars to reflect the real value of residents' purchasing power. The total change in real purchasing power for all towns combined was 3.35 percent for the period 1980-88. The largest gain was 75.5 percent for Beulah while the largest loss was -13.7 percent for Kenmare.

Retail Sales

Nominal taxable sales increased 7.1 percent in 1989, continuing a trend begun in 1987. The growth in nominal sales from 1987 to 1989 was 8.9 percent (Table 2 and Appendix Table 6). As in past years, the largest towns recorded the greatest percentage growth in sales. For instance, towns with populations over 10,000 in 1980 had increases in sales volume averaging almost 12 percent from 1987 to 1989. All towns in this group recorded positive changes for the period 1987-89. Towns with 1980 populations of 2,500 to 10,000 recorded a 1987-89 growth in sales volume that averaged 3.5 percent, and two-thirds of these towns registered gains. The towns with 1980 populations of 1,500 to 2,500, on the other hand, recorded an average loss in nominal retail sales of 1.8 percent from 1987 to 1989, reflecting a longer-term pattern of declining sales for communities of this size or smaller. From 1980 to 1989, towns with a population of 1,500 to 2,500 had an average decrease in nominal sales of 18.1 percent. Corresponding figures for towns with 1980 populations of 1,000 to 1,500, 500 to 1,000, and 200 to 500 were decreases of 11.7, 5.7, and 17.0 percent, respectively.

TABLE 2. CHANGES IN NOMINAL AND DEFLATED TAXABLE SALES AND PURCHASES BY CITY SIZE GROUP, NORTH DAKOTA, 1980-89 AND 1987-89

City Size Group	Percentage Change In: Nominal Taxable Sales and Purchases 1980-89	Nominal Taxable Sales and Purchases 1987-89	Deflated Taxable Sales 1980-89	Deflated Taxable Sales 1987-89
Population over 10,000	39.89	11.97	-7.05	2.54
Population 2,500 to 10,000	12.81	3.45	-25.04	-5.27
Population 1,500 to 2,500	-18.06	-1.78	-45.56	-10.06
Population 1,000 to 1,500	-11.68	0.63	-41.32	-7.85
Population 500 to 1,000	-5.69	8.35	-37.33	-0.78
Population 200 to 500	-17.02	-5.74	-44.87	-13.69
Total, all size groups	23.76	8.94	-17.77	-0.24

Retail sales were adjusted for the effects of inflation using the consumer price index. Statewide, deflated sales decreased by 17.8 percent from 1980 to 1989. Deflated sales also fell by about 0.2 percent from 1987 to 1989, but from 1988 to 1989 deflated sales increased about 2.2 percent, marking the first time in several years that the growth in sales had exceeded the rate of inflation (Appendix Table 7).

Pull Factors

Pull factors measure a community's success in capturing the potential purchasing power of residents in its trade area. The measure is calculated by the following formula:

$$\text{Pull Factor} = \frac{\text{Trade Area Capture (TAC)}}{\text{Trade Area Population (TAPOP)}}$$

$$\text{where TAC} = \frac{LTS_j}{PCS_s \times (PCI_c \div PCI_s)}$$

LTS_j = local taxable sales in community j

PCS_s = state per capita taxable sales

PCI_c = per capita income for county c

PCI_s = state average per capita income

As mentioned previously, trade area populations were derived using NDSU Extension Service trade area studies completed. Trade area capture measures the number of consumer equivalents purchasing taxable merchandise in a particular city. The basic underlying assumption of TAC is that local tastes and preferences, after adjusting for differences in per capita income, are the same as those for the state. Dividing TAC by trade area population provides a comparison of a community's potential and actual sales. Pull factors greater than 1.0 indicate that a community's retail sales are greater than the purchasing power of its trade area residents would indicate; hence, it may be "pulling" customers from outside its normal trade area. Conversely, a pull factor of less than 1.0 suggests that a community is not capturing all of the purchasing power of its trade area residents. Changes in the pull factor indicate improvement or decline in a community's "pulling power."

Pull factors were derived for 122 North Dakota towns (i.e., all towns for which trade area maps had been prepared) for 1980, 1987, and 1989 (Appendix Table 8). Generally, the cities with populations over 10,000 had pull factors that averaged near 1.0 in 1989. Of the six cities for which pull factors were computed, four registered decreases in their pull factors from 1987 to 1989, and two of the four also recorded decreases from 1980 to 1987 (Appendix Table 8). Within this group, only Bismarck showed steady growth in its pull factor (i.e., growth occurred during both 1980-87 and 1987-89 periods). (Pull factors were not computed for Fargo, Grand Forks, and West Fargo because trade area maps had not been prepared for those towns.)

Among the towns with populations of 2,500 to 10,000, seven of nine had decreases in their pull factors from 1987 to 1989, and four of these also had decreases from 1980 to 1987. Among towns of this group, only Wahpeton demonstrated growth in its pull factor in both the 1980-87 and 1987-89 periods, and only Wahpeton and Devils Lake showed growth for the 1980-89 period overall.

Among the smaller towns, declining pull factor values were the common pattern during the 1980s. Among towns with populations of 1,500 to 2,500, only four of 21 showed growth in their pull factors from 1980 to 1989, and only two of the four registered growth from 1987 to 1989. Similarly, among towns with 1,000 to 1,500 people, only two of 24 had increases in their pull factor values from 1980 to 1989.

Summary

The decade of the 1980s was one in which relatively small changes in state totals for such key economic indicators as employment, population, real income, and deflated retail sales concealed substantial shifts in economic activity within the state. This report represents an effort to make the most current information concerning economic and demographic trends for individual communities and counties readily available. The data used were drawn from secondary sources.

Employment increased by about 10 percent statewide from 1980 to 1989, but this growth was not distributed evenly across the state. Only 13 of 53 counties had a net employment gain during the 1980s. Similarly, population is estimated to have increased about 2.2 percent statewide from 1980 to 1988, but only 15 counties had population increases. The counties that contain the state's major trade centers (Cass, Burleigh, Grand Forks, and Ward) accounted for most of the growth in employment and population.

Per capita income increased by about 50 percent statewide, in nominal terms, from 1979 to 1987, but when the efforts of inflation are taken into account, real per capita income declined by 4 percent. No clear pattern of community characteristics was associated with high levels of per capita income.

From 1980 to 1989, retail sales increased about 24 percent in nominal terms and declined about 18 percent in real terms. The state's nine largest cities increased their share of total retail sales from 65.1 percent in 1980 to 73.5 percent in 1989.

References

Bureau of Economic Analysis. Various years. "Personal Income Estimates by County." Washington, D.C.: U.S. Department of Commerce.

Job Service North Dakota. Various issues. North Dakota Labor Force by County, by Region. Bismarck: Job Service North Dakota.

Job Service North Dakota. 1987. "Part-time Employment." North Dakota Labor Market Advisor Vol. 3, No. 2. Bismarck: Job Service North Dakota, Research and Statistics Division.

Mortensen, Timothy L., and F. Larry Leistritz. 1988a. Trends Across North Dakota: An Update of Retail Sales, Population, Market Share, and Pull Factors. Agr. Econ. Stat. Series No. 43. Fargo: North Dakota State University, Department of Agricultural Economics.

Mortensen, Timothy L., and F. Larry Leistritz. 1988b. Changes in Selected County, City, and Trade Area Characteristics Between 1980 and 1986: Retail Sales, Population, and Pull Factors. Agr. Econ. Stat. Series No. 42. Fargo: North Dakota State University, Department of Agricultural Economics.

Mortensen, Timothy L., F. Larry Leistritz, Brenda L. Ekstrom, and Janet Wanzek. 1989. Selected Economic Data by Legislative District. Agr. Econ. Stat. Series No. 44. Fargo: North Dakota State University, Department of Agricultural Economics.

NDSU Extension Service. Various years. Community Trade Area Studies. Fargo: North Dakota State University, Extension Service.

North Dakota Tax Department. Various years. North Dakota Sales and Use Tax Statistical Reports. Bismarck, ND.

U.S. Bureau of the Census. Various issues. Sub-county Population Estimates. Washington, D.C.: U.S. Department of Commerce.

U.S. Bureau of the Census. 1990. Current Population Reports. Series P-26. Washington, D.C.: Department of Commerce.

U.S. Department of Labor, Bureau of Labor Statistics. Various issues. Consumer Price Index. Washington, D.C.: U.S. Department of Labor.

FLL/cjj/5.1/ND90

Appendix

APPENDIX TABLE 1. AVERAGE ANNUAL EMPLOYMENT, NORTH DAKOTA COUNTIES AND REGIONS, 1980-89

County/ Region	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Numerical Change 80-89	Numerical Change 88-89	Percent Change 80-89	Percent Change 88-89
DIVIDE	1,541	1,673	1,667	1,625	1,553	1,566	1,462	1,416	1,415	1,367	-174	-48	-11.29	-3.39
MCKENZIE	3,738	4,598	4,297	3,770	3,902	3,641	3,080	2,861	2,828	2,764	-974	-64	-26.06	-2.26
WILLIAMS	12,322	15,209	15,159	13,287	13,656	13,286	11,579	10,712	10,760	10,654	-1,668	-106	-13.54	-0.99
REGION 1	17,601	21,480	21,123	18,682	19,111	18,493	16,121	14,989	15,003	14,785	-2,816	-218	-16.00	-1.45
BOTTINEAU	3,788	3,959	3,999	3,946	3,653	3,674	3,512	3,473	3,310	3,221	-567	-89	-14.97	-2.69
BURKE	1,847	1,868	1,910	1,882	1,492	1,491	1,393	1,343	1,269	1,243	-604	-26	-32.70	-2.05
MCHENRY	2,901	2,987	2,975	2,956	2,717	2,672	2,588	2,526	2,331	2,313	-588	-18	-20.27	-0.77
MOUNTRAIL	3,363	3,376	3,425	3,343	3,124	3,073	3,142	3,107	3,050	3,086	-277	36	-8.24	1.18
PIERCE	2,847	2,916	2,885	2,916	2,585	2,553	2,525	2,435	2,470	2,448	-399	-22	-14.01	-0.89
RENVILLE	1,516	1,548	1,512	1,523	1,369	1,342	1,300	1,246	1,177	1,165	-351	-12	-23.15	-1.02
WARD	22,350	22,673	22,606	23,232	23,658	23,864	24,189	24,493	24,884	24,692	2,342	-192	10.48	-0.77
REGION 2	38,612	39,327	39,312	39,798	38,598	38,669	38,649	38,623	38,491	38,168	-444	-323	-1.15	-0.84
BENSON	2,879	2,974	2,974	2,885	3,041	3,060	3,108	2,998	3,205	2,782	-97	-423	-3.37	-13.20
CAVALIER	3,305	3,263	3,265	3,271	2,631	2,684	2,617	2,585	2,516	2,487	-818	-29	-24.75	-1.15
EDDY	1,508	1,509	1,507	1,563	1,451	1,425	1,403	1,353	1,329	1,346	-162	17	-10.74	1.28
RAMSEY	6,180	6,085	6,114	6,378	6,135	6,084	6,255	6,298	6,302	6,446	266	144	4.30	2.28
ROLETTE	4,090	4,251	4,239	4,335	4,396	4,524	4,561	4,291	3,875	3,964	-126	89	-3.08	2.30
TOWNER	1,968	2,022	2,022	2,079	1,744	1,786	1,713	1,739	1,718	1,704	-264	-14	-13.41	-0.81
REGION 3	19,930	20,104	20,121	20,511	19,398	19,563	19,657	19,264	18,945	18,729	-1,201	-216	-6.03	-1.14
GRAND FORKS	24,911	25,039	24,958	26,633	31,414	32,720	33,866	33,907	34,726	35,181	10,270	455	41.23	1.31
NELSON	2,534	2,583	2,549	2,537	2,058	2,043	1,979	1,913	1,843	1,837	-697	-6	-27.51	-0.33
PEMBINA	5,333	5,411	5,390	5,430	4,879	5,049	4,848	4,776	4,950	4,983	-350	33	-6.56	0.67
WALSH	7,444	7,607	7,817	7,956	7,431	7,617	7,797	7,673	7,681	7,390	-54	-291	-0.73	-3.79
REGION 4	40,222	40,640	40,714	42,556	45,782	47,429	48,490	48,269	49,200	49,391	9,169	191	22.80	0.39
CASS	42,369	42,447	42,592	42,660	50,231	53,293	55,917	57,929	59,912	61,026	18,657	1,114	44.03	1.86
RANSOM	2,766	2,741	2,841	2,840	2,696	2,649	2,683	2,665	2,648	2,642	-124	-6	-4.48	-0.23
RICHLAND	7,999	8,211	8,146	8,364	8,305	8,003	8,300	8,431	8,430	8,319	320	-111	4.00	-1.32
SARGENT	2,528	2,556	2,475	2,424	2,450	2,517	2,463	2,448	2,592	2,624	96	32	3.80	1.23
STEELE	1,361	1,358	1,353	1,346	1,259	1,261	1,154	1,141	1,102	1,076	-285	-26	-20.94	-2.36
TRAILL	4,338	4,304	4,480	4,473	4,344	4,313	4,368	4,302	4,276	4,243	-95	-33	-2.19	-0.77
REGION 5	61,361	61,697	61,887	62,107	69,285	72,036	74,885	76,916	78,960	79,930	18,569	970	30.26	1.23

- Continued -

APPENDIX TABLE 1. AVERAGE ANNUAL EMPLOYMENT, NORTH DAKOTA COUNTIES AND REGIONS, 1980-89 (CONTINUED)

County/ Region	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	Numerical Change 80-89	Numerical Change 88-89	Percent Change 80-89	Percent Change 88-89
BARNES	5,961	5,884	5,913	5,920	5,655	5,789	5,825	5,916	5,588	5,615	-346	27	-5.80	0.48
DICKEY	3,290	3,286	[illegible]46	3,341	3,310	3,302	3,260	3,121	3,034	3,020	-270	-14	-8.21	-0.46
FOSTER	2,075	2,070	2,095	2,086	2,186	2,175	2,107	2,079	2,056	2,119	44	63	2.12	3.06
GRIGGS	1,642	1,639	1,619	1,620	1,542	1,514	1,510	1,481	1,504	1,523	-119	19	-7.25	1.26
LAMOURE	2,516	2,520	2,499	2,492	2,548	2,509	2,408	2,381	2,269	2,231	-285	-38	-11.33	-1.67
LOGAN	1,449	1,421	1,394	1,408	1,498	1,478	1,452	1,438	1,422	1,429	-20	7	-1.38	0.49
MCINTOSH	2,242	2,296	2,339	2,312	2,304	2,300	2,222	2,209	2,194	2,191	-51	-3	-2.27	-0.14
STUTSMAN	10,772	10,956	10,790	11,062	11,714	11,876	11,812	11,810	11,619	11,534	762	-85	7.07	-0.73
WELLS	3,146	3,185	3,160	3,191	2,898	2,898	2,830	2,785	2,675	2,640	-506	-35	-16.08	-1.31
REGION 6	33,093	33,257	33,055	33,432	33,655	33,841	33,426	33,220	32,361	32,302	-791	-59	-2.39	-0.18
BURLEIGH	24,935	25,021	24,870	26,067	28,245	30,188	30,748	31,709	32,499	33,524	8,589	1,025	34.45	3.15
EMMONS	2,302	2,319	2,400	2,295	2,204	2,270	2,169	2,119	2,080	2,089	-213	9	-9.25	0.43
GRANT	1,635	1,626	1,634	1,627	2,021	2,019	1,896	1,861	1,776	1,767	132	-9	8.07	-0.51
KIDDER	1,431	1,388	1,375	1,378	1,547	1,521	1,487	1,467	1,425	1,425	-6	0	-0.42	0.00
MCLEAN	5,035	4,958	5,051	5,117	4,550	4,536	4,267	4,508	4,232	4,175	-860	-57	-17.08	-1.35
MERCER	5,393	5,261	6,910	10,097	7,823	6,420	5,370	5,226	5,395	5,322	-71	-73	-1.32	-1.35
MORTON	11,357	11,396	11,327	11,872	12,691	11,238	11,266	11,679	11,970	12,160	803	190	7.07	1.59
OLIVER	1,134	1,091	1,108	1,044	1,040	1,026	1,047	1,094	1,053	1,004	-130	-49	-11.46	-4.65
SHERIDAN	1,186	1,167	1,184	1,173	1,226	1,207	1,156	1,106	1,108	1,114	-72	6	-6.07	0.54
SIOUX	1,256	1,260	1,223	1,173	1,233	1,187	1,240	1,261	984	985	-271	1	-21.58	0.10
REGION 7	55,664	55,487	57,082	61,843	62,580	61,612	60,646	62,030	62,522	63,565	7,901	1,043	14.19	1.67
ADAMS	1,921	1,881	1,923	1,922	1,764	1,774	1,773	1,728	1,646	1,638	-283	-8	-14.73	-0.49
BILLINGS	1,157	1,152	978	875	897	828	791	775	846	770	-387	-76	-33.45	-8.98
BOWMAN	2,038	2,089	2,112	2,118	2,252	2,268	2,145	2,101	2,086	2,081	43	-5	2.11	-0.24
DUNN	2,087	2,230	2,269	1,946	1,999	1,953	1,740	1,638	1,526	1,602	-485	76	-23.24	4.98
GOLDEN VALLEY	1,224	1,284	1,267	1,194	1,051	1,093	1,031	1,022	1,017	1,015	-209	-2	-17.08	-0.20
HETTINGER	1,810	1,815	1,851	1,819	2,015	2,011	1,877	1,843	1,742	1,714	-96	-28	-5.30	-1.61
SLOPE	566	532	517	498	530	517	463	437	439	422	-144	-17	-25.44	-3.87
STARK	10,716	12,029	12,791	11,660	12,086	11,914	11,307	11,147	11,216	10,888	172	-328	1.61	-2.92
REGION 8	21,519	23,012	23,708	22,032	22,594	22,358	21,127	20,691	20,518	20,130	-1,389	-388	-6.45	-1.89
NORTH DAKOTA	288,002	294,995	297,002	300,961	310,953	314,001	313,001	314,002	316,000	317,000	28,998	1,000	10.07	0.32

SOURCE: Job Service North Dakota. Various issues. North Dakota Labor Force by County, by Region. Bismarck.

APPENDIX TABLE 2. COUNTY POPULATIONS FOR YEARS 1980, 1982, 1984, 1986, 1987, AND 1988

County/ Region	1980	1982	1984	1986	1987	1988	Numerical Change 80-88	Numerical Change 87-88	Percent Change 80-88	Percent Change 87-88
DIVIDE	3,494	3,400	3,400	3,300	3,100	3,100	-394	0	-11.28	0.00
MCKENZIE	7,132	9,000	8,700	8,400	8,100	7,700	568	-400	7.96	-4.94
WILLIAMS	22,237	27,900	27,200	25,500	23,700	23,300	1063	-400	4.78	-1.69
REGION 1	32,863	40,300	39,300	37,200	34,900	34,100	1237	-800	3.76	-2.29
BOTTINEAU	9,239	9,300	9,300	8,800	8,700	8,700	-539	0	-5.83	0.00
BURKE	3,822	3,800	3,700	3,500	3,500	3,300	-522	-200	-13.66	-5.71
MCHENRY	7,858	7,600	7,700	7,500	7,300	7,200	-658	-100	-8.37	-1.37
MOUNTRAIL	7,679	7,900	8,200	7,900	7,700	7,600	-79	-100	-1.03	-1.30
PIERCE	6,166	6,100	6,000	5,600	5,500	5,400	-766	-100	-12.42	-1.82
RENVILLE	3,608	3,600	3,700	3,500	3,600	3,400	-208	-200	-5.76	-5.56
WARD	58,392	59,800	61,900	61,700	61,800	60,400	2008	-1400	3.44	-2.27
REGION 2	96,764	98,100	100,500	98,500	98,100	96,000	-764	-2100	-0.79	-2.14
BENSON	7,944	7,800	7,800	7,600	7,500	7,400	-544	-100	-6.85	-1.33
CAVALIER	7,636	7,300	7,100	6,700	6,500	6,400	-1236	-100	-16.19	-1.54
EDDY	3,554	3,400	3,300	3,300	3,200	3,200	-354	0	-9.96	0.00
RAMSEY	13,048	13,000	13,000	13,100	13,100	13,100	52	0	0.40	0.00
ROLETTE	12,177	12,500	13,500	12,300	12,300	12,200	23	-100	0.19	-0.81
TOWNER	4,052	4,100	4,200	3,900	3,900	3,900	-152	0	-3.75	0.00
REGION 3	48,411	48,100	48,900	46,900	46,500	46,200	-2211	-300	-4.57	-0.65
GRAND FORKS	66,100	67,100	69,100	69,800	69,800	70,500	4400	700	6.66	1.00
NELSON	5,233	5,000	5,100	4,900	4,700	4,700	-533	0	-10.19	0.00
PEMBINA	10,399	10,200	10,300	10,300	10,200	10,300	-99	100	-0.95	0.98
WALSH	15,371	15,600	15,800	15,000	14,900	14,600	-771	-300	-5.02	-2.01
REGION 4	97,103	97,900	100,300	100,000	99,600	100,100	2997	500	3.09	0.50
CASS	88,247	90,500	94,500	98,000	98,900	100,200	11953	1300	13.54	1.31
RANSOM	6,698	6,500	6,600	6,400	6,400	6,200	-498	-200	-7.44	-3.13
RICHLAND	19,207	19,600	19,500	19,600	19,600	19,300	93	-300	0.48	-1.53
SARGENT	5,512	5,400	5,400	5,200	4,900	5,000	-512	100	-9.29	2.04
STEELE	3,106	2,900	3,000	2,800	2,800	2,800	-306	0	-9.85	0.00
TRAILL	9,624	9,600	9,600	9,200	9,000	9,000	-624	0	-6.48	0.00
REGION 5	132,394	134,500	138,600	141,200	141,600	142,500	10106	900	7.63	0.64
BARNES	13,960	13,700	13,700	13,300	13,300	13,100	-860	-200	-6.16	-1.50
DICKEY	7,207	7,000	7,100	6,900	6,800	6,600	-607	-200	-8.42	-2.94
FOSTER	4,611	4,600	4,600	4,300	4,300	4,300	-311	0	-6.74	0.00
GRIGGS	3,714	3,600	3,700	3,600	3,600	3,500	-214	-100	-5.76	-2.78
LAMOURE	6,473	6,300	6,200	6,100	5,700	5,800	-673	100	-10.40	1.75
LOGAN	3,493	3,400	3,300	3,200	3,100	3,100	-393	0	-11.25	0.00
MCINTOSH	4,800	4,500	4,600	4,400	4,400	4,300	-500	-100	-10.42	-2.27
STUTSMAN	24,154	23,900	23,800	23,600	23,500	23,300	-854	-200	-3.54	-0.85
WELLS	6,979	6,800	6,900	6,500	6,500	6,400	-579	-100	-8.30	-1.54
REGION 6	75,391	73,800	73,900	71,900	71,200	70,400	-4991	-800	-6.62	-1.12

- Continued -

APPENDIX TABLE 2. COUNTY POPULATIONS FOR YEARS 1980, 1982, 1984, 1986, 1987, AND 1988 (CONTINUED)

County/ Region	1980	1982	1984	1986	1987	1988	Numerical Change 80-88	Numerical Change 87-88	Percent Change 80-88	Percent Change 87-88
BURLEIGH	54,811	56,600	59,000	60,500	60,500	60,400	5589	-100	10.20	-0.17
EMMONS	5,877	5,800	5,800	5,700	5,600	5,400	-477	-200	-8.12	-3.57
GRANT	4,274	4,300	4,300	4,200	4,100	4,000	-274	-100	-6.41	-2.44
KIDDER	3,833	3,800	3,900	3,800	3,800	3,700	-133	-100	-3.47	-2.63
MCLEAN	12,383	12,400	12,900	12,200	12,000	11,800	-583	-200	-4.71	-1.67
MERCER	9,404	11,600	14,700	13,900	13,400	13,500	4,096	100	43.56	0.75
MORTON	25,177	25,500	26,200	26,100	25,800	25,400	223	-400	0.89	-1.55
OLIVER	2,495	2,600	2,700	2,700	2,500	2,600	105	100	4.21	4.00
SHERIDAN	2,819	3,000	2,700	2,600	2,500	2,600	-219	100	-7.77	4.00
SIOUX	3,620	3,600	3,600	3,900	4,000	4,200	580	200	16.02	5.00
REGION 7	124,693	129,200	135,800	135,600	134,200	133,600	8,907	-600	7.14	-0.45
ADAMS	3,584	3,500	3,500	3,500	3,500	3,300	-284	-200	-7.92	-5.71
BILLINGS	1,138	1,300	1,300	1,300	1,200	1,300	162	100	14.24	8.33
BOWMAN	4,229	4,300	4,300	4,300	4,200	4,000	-229	-200	-5.41	-4.76
DUNN	4,627	5,000	5,200	4,800	4,600	4,500	-127	-100	-2.74	-2.17
GOLDEN VALLEY	2,391	2,700	2,600	2,400	2,400	2,300	-91	-100	-3.81	-4.17
HETTINGER	4,275	4,100	4,100	3,900	3,800	3,700	-575	-100	-13.45	-2.63
SLOPE	1,157	1,200	1,200	1,200	1,100	1,100	-57	0	-4.93	0.00
STARK	23,697	28,300	27,100	26,100	25,000	24,700	1,003	-300	4.23	-1.20
REGION 8	45,098	50,400	49,300	47,500	45,800	44,900	-198	-900	-0.44	-1.97
NORTH DAKOTA	652,717	672,000	687,000	679,000	672,000	667,000	14,283	-5,000	2.19	-0.74

APPENDIX TABLE 3. CITY AND TRADE AREA POPULATIONS BY POPULATION SIZE GROUP 1980 AND 1988

City	County	City Population 1980	City Population 1988	Percent Change 1980-88	Trade Area Population 1980	Trade Area Population 1988	Percent Change 1980-88
POPULATION OVER 10,000							
BISMARCK	BURLEIGH	44,485	47,740	7.32	55,317	60,798	9.91
DICKINSON	STARK	15,924	16,630	4.43	23,909	24,951	4.36
FARGO	CASS	61,383	69,780	13.68	.	.	.
GRAND FORKS	GRAND FORKS	43,765	48,430	10.66	.	.	.
JAMESTOWN	STUTSMAN	16,280	15,680	-3.69	26,852	25,631	-4.55
MANDAN	MORTON	15,513	15,550	0.24	23,463	24,395	3.97
MINOT	WARD	32,843	35,080	6.81	69,844	72,388	3.64
WEST FARGO	CASS	10,099	12,170	20.51	.	.	.
WILLISTON	WILLIAMS	13,336	13,220	-0.87	19,728	20,476	3.79
GROUP TOTAL		253,628	274,280	8.14			
POPULATION 2,500 TO 10,000							
BEULAH	MERCER	2,908	5,520	89.82	4,720	7,525	59.43
BOTTINEAU	BOTTINEAU	2,829	2,700	-4.56	6,902	6,627	-3.98
CARRINGTON	FOSTER	2,641	2,440	-7.61	5,782	5,240	-9.37
DEVILS LAKE	RAMSEY	7,442	7,970	7.09	18,256	17,963	-1.62
GRAFTON	WALSH	5,293	4,770	-9.88	11,374	11,080	-2.58
HARVEY	WELLS	2,527	2,460	-2.65	6,463	5,957	-7.83
RUGBY	PIERCE	3,335	3,020	-9.45	6,723	5,882	-12.51
VALLEY CITY	BARNES	7,774	7,060	-9.18	13,959	13,120	-6.01
WAHPETON	RICHLAND	9,064	9,710	7.13	12,240	12,820	4.74
GROUP TOTAL		43,813	45,650	4.19			
POPULATION 1500 TO 2500							
BOWMAN	BOWMAN	2,071	1,870	-9.71	5,008	4,816	-3.83
CASSELTON	CASS	1,661	1,670	0.54	4,259	4,250	-0.21
CAVALIER	PEMBINA	1,505	1,550	2.99	5,568	5,520	-0.86
ELLENDALE	DICKEY	1,967	1,710	-13.07	3,477	3,140	-9.69
GARRISON	MCLEAN	1,830	1,740	-4.92	3,527	3,322	-5.81
HAZEN	MERCER	2,365	3,350	41.65	4,598	5,893	28.16
HETTINGER	ADAMS	1,739	1,630	-6.27	3,185	2,913	-8.54
HILLSBORO	TRAIL	1,600	1,370	-14.37	2,961	2,810	-5.10
LANGDON	CAVALIER	2,335	2,360	1.07	6,348	5,382	-15.22
LARIMORE	GRAND FORKS	1,524	1,430	-6.17	3,055	3,050	-0.16
LINTON	EMMONS	1,561	1,340	-14.16	4,647	4,307	-7.32
LISBON	RANSOM	2,283	2,010	-11.96	4,866	4,620	-5.06
MAYVILLE	TRAIL	2,255	1,950	-13.53	4,512	4,160	-7.80
NEW ROCKFORD	EDDY	1,791	1,700	-5.08	3,510	3,100	-11.68
OAKES	DICKEY	2,112	1,870	-11.46	4,534	4,090	-9.79
PARK RIVER	WALSH	1,844	1,620	-12.15	4,682	4,300	-8.16
ROLLA	ROLETTE	1,538	1,340	-12.87	3,829	3,546	-7.39
STANLEY	MOUNTRAIL	1,631	1,520	-6.81	4,368	4,275	-2.13
TIOGA	WILLIAMS	1,597	1,780	11.46	2,615	2,900	10.90
WASHBURN	MCLEAN	1,767	1,740	-1.53	2,129	2,055	-3.48
WATFORD CITY	MCKENZIE	2,119	1,990	-6.09	4,492	4,733	5.37
GROUP TOTAL		39,095	37,540	-3.98			
POPULATION 1,000 TO 1,500							
ASHLEY	MCINTOSH	1,192	1,070	-10.23	2,328	2,058	-11.60
BEACH	GOLDEN VALLEY	1,381	1,330	-3.69	2,527	2,472	-2.18
BELFIELD	STARK	1,274	1,460	14.60	1,825	2,048	12.22
CANDO	TOWNER	1,496	1,680	12.30	3,416	3,330	-2.52
COOPERSTOWN	GRIGGS	1,308	1,220	-6.73	3,779	3,580	-5.27
CROSBY	DIVIDE	1,469	1,350	-8.10	3,353	3,020	-9.93
DRAYTON	PEMBINA	1,082	1,140	5.36	1,677	1,730	3.16
ENDERLIN	RANSOM	1,140	960	-15.79	2,796	2,590	-7.37
GLEN ULLIN	MORTON	1,125	1,010	-10.22	2,043	1,936	-5.24
HANKINSON	RICHLAND	1,158	1,030	-11.05	2,081	1,870	-10.14
HEBRON	MORTON	1,078	890	-17.44	2,893	2,842	-1.76
KENMARE	WARD	1,456	1,090	-25.14	3,349	2,888	-13.77
LAMOURE	LAMOURE	1,077	990	-8.08	2,166	2,080	-3.97
MOHALL	RENVILLE	1,049	890	-15.16	2,456	2,256	-8.14
MOTT	HETTINGER	1,315	1,110	-15.59	2,896	2,513	-13.23
NAPOLEON	LOGAN	1,103	930	-15.68	2,143	1,985	-7.37
NEW SALEM	MORTON	1,081	1,050	-2.87	2,569	2,615	1.79
NEW TOWN	MOUNTRAIL	1,335	1,310	-1.87	1,848	1,930	4.44
NORTHWOOD	GRAND FORKS	1,240	1,160	-6.45	2,115	2,120	0.24
PARSHALL	MOUNTRAIL	1,059	1,020	-3.68	2,012	1,985	-1.34
UNDERWOOD	MCLEAN	1,329	1,250	-5.94	2,300	2,088	-9.22
VELVA	MCHENRY	1,101	1,030	-6.45	2,699	2,590	-4.04
WALHALLA	PEMBINA	1,429	1,350	-5.53	2,284	2,160	-5.43
WISHEK	MCINTOSH	1,345	1,220	-9.29	2,772	2,456	-11.40
GROUP TOTAL		29,622	27,540	-7.03			

- Continued -

APPENDIX TABLE 3. CITY AND TRADE AREA POPULATIONS BY POPULATION SIZE GROUP 1980 AND 1988 (CONTINUED)

City	County	City Population 1980	City Population 1988	Percent Change 1980-88	Trade Area Population 1980	Trade Area Population 1988	Percent Change 1980-88
POPULATION 500 TO 1,000							
BOWBELLS	BURKE	587	520	-11.41	900	780	-13.33
BURLINGTON	WARD	762	1,000	31.23	.	.	.
CENTER	OLIVER	900	970	7.78	1,623	1,696	4.50
DUNSEITH	ROLETTE	625	740	18.40	2,749	2,846	3.53
EDGELEY	LA MOURE	843	640	-24.08	1,433	1,180	-17.66
ELGIN	GRANT	930	760	-18.28	2,092	1,869	-10.66
EMERADO	GRAND FORKS	596	580	-2.68	.	.	.
FESSENDEN	WELLS	761	770	1.18	1,527	1,450	-5.04
FINLEY	STEELE	718	620	-13.65	1,548	1,380	-10.85
FORMAN	SARGENT	629	630	0.16	2,303	2,070	-10.12
FORT YATES	SIOUX	771	850	10.25	.	.	.
GWINNER	SARGENT	725	640	-11.72	878	830	-5.47
HATTON	TRAIL	787	730	-7.24	1,669	1,600	-4.13
KILLDEER	DUNN	790	810	2.53	1,714	1,711	-0.18
KINDRED	CASS	568	530	-6.69	.	.	.
KULM	LA MOURE	570	480	-15.79	1,158	1,070	-7.60
LAKOTA	NELSON	963	880	-8.62	2,659	2,290	-13.88
LEEDS	BENSON	678	600	-11.50	1,111	930	-16.29
LIDGERWOOD	RICHLAND	971	800	-17.61	2,128	1,840	-13.53
LINCOLN	BURLEIGH	656	1,390	111.89	.	.	.
MADDOCK	BENSON	677	610	-9.90	1,855	1,580	-14.82
MCCLUSKY	SHERIDAN	658	530	-19.45	1,367	1,158	-15.29
MCVILLE	NELSON	626	540	-13.74	2,222	2,040	-8.19
MEDINA	STUTSMAN	521	410	-21.31	1,049	924	-11.92
MICHIGAN	NELSON	502	370	-26.29	.	.	.
MILNOR	SARGENT	716	710	-0.84	1,552	1,490	-3.99
MINTO	WALSH	592	680	14.86	1,807	1,870	3.49
NEW ENGLAND	HETTINGER	825	690	-16.36	1,690	1,447	-14.38
PEMBINA	PEMBINA	673	680	1.04	1,701	1,670	-1.82
PORTLAND	TRAIL	627	570	-9.09	853	800	-6.21
RAY	WILLIAMS	766	780	1.83	960	1,028	7.08
RICHARDTON	STARK	699	760	8.73	1,541	1,598	3.70
ROLETTE	ROLETTE	667	610	-8.55	1,728	1,870	8.22
ST. THOMAS	PEMBINA	528	540	2.27	.	.	.
STANTON	MERCER	623	670	7.54	.	.	.
STEELE	KIDDER	796	760	-4.52	2,266	2,183	-3.66
STRASBURG	EMMONS	623	490	-21.35	.	.	.
SURREY	WARD	999	1,010	1.10	.	.	.
THOMPSON	GRAND FORKS	785	990	26.11	.	.	.
TOWNER	MCHENRY	867	680	-21.57	1,885	1,750	-7.16
TURTLE LAKE	MCLEAN	802	670	-16.46	1,892	1,685	-10.94
WESTHOPE	BOTTINEAU	741	610	-17.68	1,680	1,410	-16.07
WILTON	MCLEAN	950	880	-7.37	2,014	2,070	2.78
WYNDMERE	RICHLAND	550	530	-3.64	1,182	1,170	-1.02
ZAP	MERCER	511	490	-4.11	.	.	.
GROUP TOTAL		32,154	31,200	-2.97			
POPULATION 200 TO 500							
ABERCROMBIE	RICHLAND	260	230	-11.54	.	.	.
ADAMS	WALSH	303	270	-10.89	1,435	1,330	-7.32
ALEXANDER	MCKENZIE	358	370	3.35	.	.	.
ANAMOOSE	MCHENRY	355	310	-12.68	.	.	.
ANETA	NELSON	341	270	-20.82	.	.	.
ARTHUR	CASS	445	380	-14.61	777	720	-7.34
BERTHOLD	WARD	485	420	-13.40	1,029	960	-6.71
BINFORD	GRIGGS	293	260	-11.26	.	.	.
BISBEE	TOWNER	257	240	-6.61	499	440	-11.82
BOWDON	WELLS	220	220	0.00	.	.	.
BUFFALO	CASS	226	200	-11.50	.	.	.
BUXTON	TRAIL	336	320	-4.76	.	.	.
CARPIO	WARD	244	240	-1.64	.	.	.
CARSON	GRANT	469	410	-12.58	1,448	1,337	-7.67
COGSWELL	SARGENT	227	180	-20.70	.	.	.
COLUMBUS	BURKE	325	350	7.69	1,133	980	-13.50
CRYSTAL	PEMBINA	256	250	-2.34	.	.	.
DES LACS	WARD	212	200	-5.66	.	.	.
DRAKE	MCHENRY	479	400	-16.49	1,436	1,243	-13.44
EDINBURG	WALSH	300	280	-6.67	.	.	.
EDMORE	RAMSEY	416	350	-15.87	1,245	1,020	-18.07
ESMOND	BENSON	337	240	-28.78	.	.	.
FAIRMOUNT	RICHLAND	480	440	-8.33	799	730	-8.64
FLASHER	MORTON	410	400	-2.44	1,457	1,500	2.95
FORDVILLE	WALSH	326	310	-4.91	.	.	.
GACKLE	LOGAN	456	400	-12.28	920	834	-9.35
GILBY	GRAND FORKS	283	380	34.28	.	.	.

- Continued -

APPENDIX TABLE 3. CITY AND TRADE AREA POPULATIONS BY POPULATION SIZE GROUP 1980 AND 1988 (CONTINUED)

City	County	City Population 1980	City Population 1988	Percent Change 1980-88	Trade Area Population 1980	Trade Area Population 1988	Percent Change 1980-88
POPULATION 200 TO 500 (Continued)							
GLADSTONE	STARK	317	310	-2.21	1,310	1,304	-0.46
GLENBURN	RENVILLE	454	410	-9.69	1,835	1,761	-4.03
GOLDEN VALLEY	MERCER	287	420	46.34	.	.	.
GOODRICH	SHERIDAN	288	250	-13.19	.	.	.
GRANDIN	CASS	210	240	14.29	.	.	.
GRANVILLE	MCHENRY	281	240	-14.59	.	.	.
GRENORA	WILLIAMS	362	420	16.02	.	.	.
HALLIDAY	DUNN	355	330	-7.04	1,362	1,272	-6.61
HANNAFORD	GRIGGS	201	170	-15.42	.	.	.
HARWOOD	CASS	326	570	74.85	.	.	.
HAZELTON	EMMONS	266	220	-17.29	1,037	972	-6.27
HOOPLE	WALSH	350	300	-14.29	.	.	.
HOPE	STEELE	406	340	-16.26	752	690	-8.24
HORACE	CASS	494	660	33.60	.	.	.
HUNTER	CASS	369	350	-5.15	635	620	-2.36
KENSAL	STUTSMAN	210	200	-4.76	774	710	-8.27
LANSFORD	BOTTINEAU	294	290	-1.36	.	.	.
LEHR	MCINTOSH	254	160	-37.01	.	.	.
LEONARD	CASS	289	280	-3.11	.	.	.
LIGNITE	BURKE	332	270	-18.67	.	.	.
LITCHVILLE	BARNES	251	230	-8.37	.	.	.
MANVEL	GRAND FORKS	308	390	26.62	.	.	.
MAPLETON	CASS	306	430	40.52	.	.	.
MARION	LA MOURE	214	200	-6.54	.	.	.
MAX	MCLEAN	317	280	-11.67	1,397	1,355	-3.01
MINNEWAUKAN	BENSON	461	430	-6.72	.	.	.
MOORETON	RICHLAND	216	180	-16.67	.	.	.
MUNICH	CAVALIER	300	290	-3.33	.	.	.
NECHE	PEMBINA	471	490	4.03	861	840	-2.44
NEW LEIPZIG	GRANT	352	350	-0.57	2,219	1,979	-10.82
NOONAN	DIVIDE	283	190	-32.86	.	.	.
OSNABROCK	CAVALIER	222	200	-9.91	.	.	.
PAGE	CASS	329	360	9.42	653	660	1.07
PETERSBURG	NELSON	230	220	-4.35	.	.	.
PLAZA	MOUNTRAIL	222	230	3.60	.	.	.
PORTAL	BURKE	238	230	-3.36	.	.	.
POWERS LAKE	BURKE	466	370	-20.60	1,149	990	-13.84
REEDER	ADAMS	355	280	-21.13	.	.	.
REGENT	HETTINGER	297	230	-22.56	926	840	-9.29
REYNOLDS	GRAND FORKS	309	130	-57.93	.	.	.
RHAME	BOWMAN	222	180	-18.92	.	.	.
RIVERSIDE	CASS	465	623	33.98	.	.	.
ROCKLAKE	TOWNER	287	230	-19.86	.	.	.
RUTLAND	SARGENT	250	180	-28.00	906	780	-13.91
SANBORN	BARNES	237	210	-11.39	.	.	.
SAWYER	WARD	417	410	-1.68	.	.	.
SCRANTON	BOWMAN	415	420	1.20	.	.	.
SELFRIDGE	SIOUX	273	320	17.22	.	.	.
SHERWOOD	RENVILLE	294	290	-1.36	.	.	.
SHEYENNE	EDDY	307	310	0.98	610	550	-9.84
SOUTH HEART	STARK	294	380	29.25	.	.	.
ST. JOHN	ROLETTE	401	390	-2.74	.	.	.
STARKWEATHER	RAMSEY	210	190	-9.52	.	.	.
STREETER	STUTSMAN	264	220	-16.67	744	697	-6.32
TAPPEN	KIDDER	271	270	-0.37	.	.	.
TAYLOR	STARK	239	220	-7.95	.	.	.
TOLNA	NELSON	241	260	7.88	.	.	.
TOWER CITY	CASS	293	260	-11.26	.	.	.
TUTTLE	KIDDER	202	200	-0.99	.	.	.
UPHAM	MCHENRY	227	180	-20.70	.	.	.
WILDROSE	WILLIAMS	214	200	-6.54	.	.	.
WILLOW	BOTTINEAU	329	280	-14.89	.	.	.
WIMBLEDON	BARNES	330	280	-15.15	838	770	-8.11
WING	BURLEIGH	220	200	-9.09	1,070	1,153	7.76
ZEELAND	MCINTOSH	253	210	-17.00	.	.	.
GROUP TOTAL		28,746	27,373	-4.78			
IN-STATE TOTAL		427,058	443,583	3.87			

APPENDIX TABLE 4. PER CAPITA INCOME IN 1979 AND ESTIMATES OF PER CAPITA INCOME FOR 1987 FOR NORTH DAKOTA COUNTIES

County	Per Capita Income			Percent Change		Rank Based on 1987 Per Capita Income
	1987	1979*	1979**	1979-87*	1979-87**	
ADAMS	$8,416	$5,864	$9,175	43.5	-8.3	35
BARNES	8,800	6,220	9,732	41.5	-9.6	26
BENSON	7,296	4,958	7,758	47.2	-6.0	46
BILLINGS	10,572	8,094	12,665	30.6	-16.5	4
BOTTINEAU	9,101	5,765	9,020	57.9	0.9	20
BOWMAN	8,943	6,195	9,693	44.3	-7.7	22
BURKE	7,939	5,351	8,373	48.3	-5.2	43
BURLEIGH	11,503	7,767	12,153	48.1	-5.4	1
CASS	11,294	7,686	12,026	46.9	-6.1	2
CAVALIER	10,346	6,107	9,556	69.4	8.3	5
DICKEY	7,942	5,243	8,204	51.5	-3.2	42
DIVIDE	10,138	6,235	9,756	62.6	3.9	7
DUNN	7,724	5,650	8,841	36.7	-12.6	44
EDDY	9,313	5,830	9,122	59.7	2.1	16
EMMONS	8,044	4,692	7,342	71.4	9.6	41
FOSTER	8,752	6,357	9,947	37.7	-12.0	27
GOLDEN VALLEY	9,498	6,239	9,762	52.2	-2.7	14
GRAND FORKS	9,957	6,519	10,200	52.7	-2.4	10
GRANT	7,172	4,262	6,669	68.3	7.5	48
GRIGGS	8,435	5,782	9,047	45.9	-6.8	33
HETTINGER	8,099	5,104	7,986	58.7	1.4	39
KIDDER	6,595	4,543	7,108	45.2	-7.2	50
LAMOURE	8,431	5,218	8,165	61.6	3.3	34
LOGAN	7,020	4,639	7,259	51.3	-3.3	49
MCHENRY	7,199	4,949	7,746	45.5	-7.0	47
MCINTOSH	8,318	5,145	8,050	61.7	3.3	36
MCKENZIE	8,440	6,142	9,610	37.4	-12.2	32
MCLEAN	8,815	6,068	9,495	45.3	-7.2	25
MERCER	10,310	7,071	11,067	45.8	-6.8	6
MORTON	8,919	6,249	9,778	42.7	-8.8	24
MOUNTRAIL	8,290	5,476	8,568	51.4	-3.2	37
NELSON	8,089	5,529	8,651	46.3	-6.5	40
OLIVER	9,155	5,984	9,363	53.0	-2.2	19
PEMBINA	9,690	6,104	9,551	58.8	1.5	11
PIERCE	8,472	5,279	8,260	60.5	2.6	31
RAMSEY	9,649	6,347	9,931	52.0	-2.8	12
RANSOM	8,737	5,636	8,819	55.0	-0.9	28
RENVILLE	8,218	5,730	8,966	43.4	-8.3	38
RICHLAND	10,096	6,237	9,806	61.1	3.0	8
ROLETTE	6,117	4,147	6,489	47.5	-5.7	52
SARGENT	9,156	5,761	9,014	58.9	1.6	18
SHERIDAN	7,425	4,936	7,723	50.4	-3.9	45
SIOUX	5,341	3,642	5,699	46.7	-6.3	53
SLOPE	6,167	4,936	7,723	24.9	-20.1	51
STARK	8,933	6,442	10,080	38.7	-11.4	23
STEELE	11,130	6,919	10,826	60.9	2.8	3
STUTSMAN	9,422	6,494	10,161	45.1	-7.3	15
TOWNER	9,082	6,212	9,720	46.2	-6.6	21
TRAILL	9,525	6,508	10,183	46.4	-6.5	13
WALSH	8,682	5,211	8,154	66.6	6.5	29
WARD	9,196	6,389	9,997	43.9	-8.0	17
WELLS	8,622	5,520	8,637	56.2	-0.2	30
WILLIAMS	10,081	7,565	11,837	33.3	-14.8	9
NORTH DAKOTA	**$9,641**	**$6,417**	**$10,041**	**50.2**	**-4.0**	—

SOURCE: U.S. Department of Commerce, Bureau of the Census, "Current Population Reports," Series P-26 (Spring, 1990).

* Actual dollars, not corrected for inflation.
** Real dollars; that is, 1979 dollars were inflated to equal their value in 1987 dollars using the Consumer Price Index inflators (U.S. Department of Labor, Bureau of Labor Statistics).

APPENDIX TABLE 5. TRADE AREA PURCHASING POWER, NOMINAL AND DEFLATED, 1980 AND 1988, FOR NORTH DAKOTA COMMUNITIES

City	Nominal			Deflated (1988 Dollars)		
	1980	1988	Percent Change 1980-88	1980	1988	Percent Change 1980-88
ADAMS	7,421,551	11,903,410	60.39	10,657,347	11,903,410	11.69
ARTHUR	5,592,180	7,556,020	35.12	8,030,370	7,556,020	-5.91
ASHLEY	12,641,825	18,183,844	43.84	18,153,661	18,183,844	0.17
BEACH	15,801,212	23,419,882	48.22	22,690,540	23,419,882	3.21
BELFIELD	11,052,304	15,515,656	40.38	15,871,109	15,515,656	-2.24
BERTHHOLD	5,447,878	7,410,460	36.02	7,823,153	7,410,460	-5.28
BEULAH	28,511,852	71,854,490	152.02	40,943,019	71,854,490	75.50
BISBEE	3,577,551	4,568,960	27.71	5,137,363	4,568,960	-11.06
BISMARCK	435,871,008	711,653,114	63.27	625,910,767	711,653,114	13.70
BOTTINEAU	40,709,837	61,325,326	50.64	58,459,326	61,325,326	4.90
BOWBELLS	4,954,432	6,533,600	31.87	7,114,564	6,533,600	-8.17
BOWMAN	30,914,761	42,570,972	37.70	44,393,597	42,570,972	-4.11
CANDO	22,355,324	31,522,120	41.00	32,102,245	31,522,120	-1.81
CARRINGTON	37,005,848	47,439,950	28.20	53,140,398	47,439,950	-10.73
CARSON	6,532,528	10,545,214	61.43	9,380,710	10,545,214	12.41
CASSELTON	28,831,099	41,731,520	44.74	41,401,458	41,731,520	0.80
CAVALIER	34,350,542	55,018,670	60.17	49,327,378	55,018,670	11.54
CENTER	6,228,900	11,399,440	83.01	8,944,700	11,399,440	27.44
COLUMBUS	6,385,608	8,096,980	26.80	9,169,733	8,096,980	-11.70
COOPERSTOWN	22,507,025	31,355,390	39.31	32,320,088	31,355,390	-2.98
CROSBY	20,398,693	30,636,240	50.19	29,292,523	30,636,240	4.59
DEVILS LAKE	107,922,806	163,610,938	51.60	154,977,149	163,610,938	5.57
DICKINSON	137,965,226	197,418,086	43.09	198,118,065	197,418,086	-0.35
DRAKE	7,359,544	9,788,745	33.01	10,568,305	9,788,745	-7.38
DRAYTON	10,530,360	17,221,820	63.54	15,121,597	17,221,820	13.89
DUNSEITH	11,322,040	17,681,962	56.17	16,258,449	17,681,962	8.76
EDGELEY	8,714,108	12,445,440	42.82	12,513,459	12,445,440	-0.54
EDMORE	7,536,233	10,115,630	34.23	10,822,031	10,115,630	-6.53
ELGIN	11,074,472	17,144,038	54.81	15,902,942	17,144,038	7.80
ELLENDALE	17,979,650	25,048,920	39.32	25,818,777	25,048,920	-2.98
ENDERLIN	15,971,406	22,700,200	42.13	22,934,939	22,700,200	-1.02
FAIRMOUNT	5,064,904	7,217,250	42.50	7,273,202	7,217,250	-0.77
FESSENDEN	9,068,379	14,643,470	61.48	13,022,192	14,643,470	12.45
FINLEY	11,058,450	15,385,270	39.13	15,879,934	15,385,270	-3.12
FLASHER	2,768,672	4,313,748	55.81	3,975,813	4,313,748	8.50
FORMAN	13,225,637	18,827,730	42.36	18,992,015	18,827,730	-0.87
GACKLE	5,308,155	7,761,040	46.21	7,622,511	7,761,040	1.82
GARRISON	21,342,368	28,557,820	33.81	30,647,640	28,557,820	-6.82
GLADSTONE	1,753,644	2,376,150	35.50	2,518,233	2,376,150	-5.64
GLEN ULLIN	7,364,050	10,847,854	47.31	10,574,776	10,847,854	2.58
GLENBURN	8,866,642	12,392,840	39.77	12,732,498	12,392,840	-2.67
GRAFTON	62,022,621	96,259,970	55.20	89,064,484	96,259,970	8.08
GWINNER	5,675,986	8,333,750	46.82	8,150,716	8,333,750	2.25
HALLIDAY	8,015,530	10,741,158	34.00	11,510,301	10,741,158	-6.68
HANKINSON	10,932,459	15,305,720	40.00	15,699,011	15,305,720	-2.51
HARVEY	34,253,985	48,177,349	40.65	49,188,722	48,177,349	-2.06
HATTON	9,751,378	14,537,130	49.08	14,002,979	14,537,130	3.81
HAZELTON	4,981,286	7,805,968	56.71	7,153,127	7,805,968	9.13
HAZEN	29,739,985	53,589,800	80.19	42,706,618	53,589,800	25.48
HEBRON	5,986,134	7,717,190	28.92	8,596,088	7,717,190	-10.22
HETTINGER	20,466,601	27,117,758	32.50	29,390,039	27,117,758	-7.73
HILLSBORO	20,343,443	27,346,870	34.43	29,213,184	27,346,870	-6.39
HOPE	4,777,110	7,232,840	51.41	6,859,930	7,232,840	5.44
HUNTER	4,502,097	6,269,990	39.27	6,465,011	6,269,990	-3.02
JAMESTOWN	171,654,012	238,498,442	38.94	246,495,161	238,498,442	-3.24
KENMARE	20,166,676	24,996,292	23.95	28,959,347	24,996,292	-13.68
KENSAL	4,449,660	5,806,270	30.49	6,389,712	5,806,270	-9.13
KILLDEER	11,178,350	15,441,224	38.14	16,052,111	15,441,224	-3.81
KULM	6,405,047	9,283,530	44.94	9,197,647	9,283,530	0.93
LAKOTA	15,500,298	20,152,410	30.01	22,258,428	20,152,410	-9.46
LAMOURE	10,691,033	15,949,510	49.19	15,352,323	15,949,510	3.89
LANGDON	39,654,832	57,335,690	44.59	56,944,339	57,335,690	0.69
LARIMORE	18,013,075	28,226,360	56.70	25,866,776	28,226,360	9.12
LEEDS	6,921,367	8,583,500	24.01	9,939,083	8,583,500	-13.64
LIDGERWOOD	12,299,879	18,473,090	50.19	17,662,626	18,473,090	4.59
LINTON	21,838,769	35,320,528	61.73	31,360,472	35,320,528	12.63
LISBON	27,751,980	40,870,620	47.27	39,851,843	40,870,620	2.56
MADDOCK	10,462,603	13,280,540	26.93	15,024,298	13,280,540	-11.61
MANDAN	123,629,058	177,986,470	43.97	177,531,327	177,986,470	0.26
MAX	8,038,658	11,031,565	37.23	11,543,513	11,031,565	-4.43

- Continued -

APPENDIX TABLE 5. TRADE AREA PURCHASING POWER, NOMINAL AND DEFLATED, 1980 AND 1988, FOR NORTH DAKOTA COMMUNITIES (CONTINUED)

City	Nominal			Deflated (1988 Dollars)		
	1980	1988	Percent Change 1980-88	1980	1988	Percent Change 1980-88
MAYVILLE	28,667,514	39,147,780	36.56	41,166,550	39,147,780	-4.90
MCCLUSKY	7,192,320	9,187,510	27.74	10,328,172	9,187,510	-11.04
MCVILLE	11,962,058	16,106,570	34.65	17,177,515	16,106,570	-6.23
MEDINA	5,706,107	7,582,218	32.88	8,193,970	7,582,218	-7.47
MILNOR	9,541,666	14,544,000	52.43	13,701,832	14,544,000	6.15
MINOT	421,358,801	628,331,810	49.12	605,071,238	628,331,810	3.84
MINTO	9,737,324	16,849,180	73.04	13,982,797	16,849,180	20.50
MOHALL	14,895,426	19,780,018	32.79	21,389,832	19,780,018	-7.53
MONTPELIER	5,532,280	8,089,240	46.22	7,944,354	8,089,240	1.82
MOTT	15,809,849	22,114,106	39.88	22,702,943	22,114,106	-2.59
NAPOLEAN	10,154,495	14,025,680	38.12	14,581,855	14,025,680	-3.81
NECHE	4,305,783	7,230,930	67.94	6,183,104	7,230,930	16.95
NEW ENGLAND	9,740,953	12,678,139	30.15	13,988,009	12,678,139	-9.36
NEW LEIPZIG	11,782,947	18,085,838	53.49	16,920,312	18,085,838	6.89
NEW ROCKFORD	21,497,330	30,326,130	41.07	30,870,166	30,326,130	-1.76
NEW SALEM	7,487,285	11,384,308	52.05	10,751,741	11,384,308	5.88
NEW TOWN	9,483,258	15,489,490	63.34	13,617,958	15,489,490	13.74
NORTHWOOD	13,913,062	20,956,330	50.62	19,979,157	20,956,330	4.89
OAKES	25,430,910	35,276,410	38.71	36,518,787	35,276,410	-3.40
PAGE	4,774,396	6,808,660	42.61	6,856,033	6,808,660	-0.69
PARK RIVER	23,660,496	38,240,920	61.62	33,976,472	38,240,920	12.55
PARSHALL	10,374,581	15,697,510	51.31	14,897,898	15,697,510	5.37
PEMBINA	9,554,063	16,149,540	69.03	13,719,634	16,149,540	17.71
PORTLAND	4,920,574	6,725,990	36.69	7,065,944	6,725,990	-4.81
POWERS LAKE	5,699,209	7,475,840	31.17	8,184,064	7,475,840	-8.65
RAY	6,294,176	9,784,508	55.45	9,038,437	9,784,508	8.25
REGENT	5,205,365	7,399,780	42.16	7,474,904	7,399,780	-1.01
RICHARDSON	5,642,225	8,710,904	54.39	8,102,235	8,710,904	7.51
ROLETTE	8,013,032	12,158,730	51.74	11,506,714	12,158,730	5.67
ROLLA	20,255,553	27,167,792	34.13	29,086,974	27,167,792	-6.60
RUGBY	37,138,276	51,486,539	38.63	53,330,564	51,486,539	-3.46
RUTLAND	5,296,432	7,132,210	34.66	7,605,676	7,132,210	-6.23
SHEYENNE	3,599,359	5,141,580	42.85	5,168,680	5,141,580	-0.52
STANLEY	24,947,744	36,506,560	46.33	35,824,960	36,506,560	1.90
STEELE	10,953,930	15,592,205	42.34	15,729,843	15,592,205	-0.88
STREETER	3,916,124	5,537,410	41.40	5,623,554	5,537,410	-1.53
TIOGA	19,791,130	30,178,840	52.49	28,420,063	30,178,840	6.19
TOWNER	9,587,904	12,832,680	33.84	13,768,230	12,832,680	-6.79
TURTLE LAKE	10,243,691	13,017,685	27.08	14,709,940	13,017,685	-11.50
UNDERWOOD	14,260,147	17,910,280	25.60	20,477,571	17,910,280	-12.54
VALLEY CITY	88,542,817	118,165,480	33.46	127,147,485	118,165,480	-7.06
VELVA	15,684,836	22,054,910	40.61	22,523,424	22,054,910	-2.08
WAHPETON	78,596,207	130,629,890	66.20	112,864,153	130,629,890	15.74
WALHALLA	12,172,161	18,567,000	52.54	17,479,223	18,567,000	6.22
WASHBURN	15,814,885	20,627,385	30.43	22,710,175	20,627,385	-9.17
WATFORD CITY	29,831,646	43,786,422	46.78	42,838,244	43,786,422	2.21
WESTHOPE	9,674,212	13,074,820	35.15	13,892,168	13,074,820	-5.88
WILLISTON	150,182,947	206,507,115	37.50	215,662,712	206,507,115	-4.25
WILTON	11,466,715	18,292,260	59.52	16,466,203	18,292,260	11.09
WIMBLEDON	4,666,788	6,110,160	30.93	6,701,508	6,110,160	-8.82
WING	7,983,330	12,913,159	61.75	11,464,062	12,913,159	12.64
WISHEK	14,541,733	20,752,182	42.71	20,881,929	20,752,182	-0.62
WYNDMERE	8,047,883	12,749,010	58.41	11,556,760	12,749,010	10.32
TOTAL	3,274,925,551	4,860,483,386	48.42	4,702,794,527	4,860,483,386	3.35

APPENDIX TABLE 6. NOMINAL TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP

City	Nominal Taxable Sales and Purchases				Percent Change	
	1980	1987	1988	1989	1980-89	1987-89
	dollars					
POPULATION OVER 10,000						
BISMARCK	314,769,714	397,554,462	423,351,254	458,447,623	45.65	15.32
DICKINSON	145,971,056	116,980,361	119,859,248	124,969,545	-14.39	6.83
FARGO	451,323,763	638,978,246	682,780,408	737,803,337	63.48	15.47
GRAND FORKS	229,782,890	382,046,882	393,475,522	432,857,077	88.38	13.30
JAMESTOWN	91,395,005	104,123,521	101,518,349	106,926,991	16.99	2.69
MANDAN	68,953,802	75,575,081	71,572,496	78,038,107	13.17	3.26
MINOT	231,782,878	298,186,811	299,306,730	319,240,924	37.73	7.06
WEST FARGO	20,737,547	27,476,644	29,842,799	35,155,072	69.52	27.95
WILLISTON	158,759,199	99,781,843	102,889,609	103,561,002	-34.77	3.79
GROUP TOTAL	1,713,475,854	2,140,703,851	2,224,596,415	2,396,999,678	39.89	11.97
POPULATION 2,500 TO 10,000						
BEULAH	14,026,243	12,537,100	12,416,526	13,789,391	-1.69	9.99
BOTTINEAU	23,735,127	18,867,761	17,684,273	18,404,403	-22.46	-2.46
CARRINGTON	20,793,429	18,462,171	17,491,711	19,453,390	-6.44	5.37
DEVILS LAKE	55,122,584	68,801,472	68,331,390	71,490,321	29.69	3.91
GRAFTON	32,600,795	40,493,448	37,941,294	42,582,528	30.62	5.16
HARVEY	17,499,277	17,039,021	15,122,695	15,490,268	-11.48	-9.09
RUGBY	20,165,700	20,173,235	19,849,062	23,437,887	16.23	16.18
VALLEY CITY	42,919,223	43,110,869	41,039,051	41,925,021	-2.32	-2.75
WAHPETON	38,075,570	49,431,179	49,976,974	52,301,959	37.36	5.81
GROUP TOTAL	264,937,948	288,916,256	279,852,976	298,875,168	12.81	3.45
POPULATION 1500 TO 2500						
BOWMAN	14,685,304	14,042,207	12,830,488	13,670,286	-6.91	-2.65
CASSELTON	9,199,940	7,828,101	7,242,616	7,453,485	-18.98	-4.79
CAVALIER	12,937,797	15,713,138	14,904,895	17,211,421	33.03	9.54
ELLENDALE	7,938,891	5,361,981	5,025,110	5,820,123	-26.69	8.54
GARRISON	10,120,740	8,954,166	8,283,080	8,063,061	-20.33	-9.95
HAZEN	10,465,694	10,780,074	11,138,603	10,495,380	0.28	-2.64
HETTINGER	10,235,931	11,771,238	11,356,374	11,893,179	16.19	1.04
HILLSBORO	5,844,436	8,222,431	7,163,595	8,232,379	40.86	0.12
LANGDON	17,510,086	17,413,464	16,970,726	17,544,619	0.20	0.75
LARIMORE	4,694,516	4,982,609	4,322,390	4,020,338	-14.36	-19.31
LINTON	8,131,018	7,406,307	7,307,056	7,828,082	-3.73	5.69
LISBON	13,182,150	17,946,712	16,629,792	19,565,434	48.42	9.02
MAYVILLE	10,951,255	11,095,783	11,178,258	11,216,517	2.42	1.09
NEW ROCKFORD	9,006,208	5,770,992	5,331,360	5,193,208	-42.34	-10.01
OAKES	13,988,381	11,080,701	10,752,038	11,900,182	-14.93	7.40
PARK RIVER	8,507,157	7,930,415	7,385,021	7,755,265	-8.84	-2.21
ROLLA	11,972,674	12,583,545	12,384,445	12,601,335	5.25	0.14
STANLEY	9,530,020	8,211,513	8,492,145	8,751,972	-8.16	6.58
TIOGA	60,135,025	18,492,149	16,040,297	13,025,277	-78.34	-29.56
WASHBURN	8,258,452	9,350,624	8,306,088	8,432,312	2.11	-9.82
WATFORD CITY	18,858,922	15,450,116	16,080,606	15,602,903	-17.27	0.99
GROUP TOTAL	276,154,597	230,388,266	219,124,983	226,276,758	-18.06	-1.78
POPULATION 1,000 TO 1,500						
ASHLEY	3,919,081	4,553,442	4,011,805	4,323,835	10.33	-5.04
BEACH	7,728,949	8,018,726	6,968,843	7,277,628	-5.84	-9.24
BELFIELD	7,593,916	4,555,862	4,516,184	4,540,025	-40.21	-0.35
CANDO	9,988,240	7,262,128	5,888,417	6,214,370	-37.78	-14.43
COOPERSTOWN	9,802,210	9,269,786	9,411,302	10,094,243	2.98	8.89
CROSBY	8,361,043	6,261,903	6,004,339	5,563,185	-33.46	-11.16
DRAYTON	3,430,345	4,715,097	4,599,699	4,568,724	33.19	-3.10
ENDERLIN	4,101,144	3,337,083	7,835,968	4,436,799	8.18	32.95
GLEN ULLIN	3,539,349	3,553,989	3,321,111	3,497,143	-1.19	-1.60
HANKINSON	4,327,479	4,102,120	4,005,845	4,486,050	3.66	9.36
HEBRON	3,134,489	2,151,023	2,235,829	2,287,821	-27.01	6.36
KENMARE	12,124,284	8,959,317	8,117,917	8,353,065	-31.10	-6.77
LAMOURE	7,051,158	6,835,993	6,337,083	7,726,092	9.57	13.02
MOHALL	8,468,430	7,084,539	7,908,861	7,469,209	-11.81	5.42
MOTT	6,563,516	5,100,277	4,515,019	4,329,037	-34.04	-15.12
NAPOLEON	6,085,746	5,948,360	5,176,054	5,322,539	-12.54	-10.52
NEW SALEM	5,392,321	4,725,227	4,576,711	4,729,589	-12.29	0.09
NEW TOWN	2,754,523	2,987,639	2,716,328	2,629,201	-4.55	-12.00
NORTHWOOD	10,745,775	8,842,182	10,259,743	10,978,981	2.17	24.17
PARSHALL	2,306,784	1,664,663	1,598,097	1,621,848	-29.69	-2.57
UNDERWOOD	5,259,789	4,265,438	3,393,001	3,092,794	-41.20	-27.49
VELVA	4,343,628	4,244,958	3,978,104	4,623,679	6.45	8.92
WALHALLA	4,142,321	4,858,585	4,441,133	5,261,024	27.01	8.28
WISHEK	6,843,949	6,610,045	6,412,584	7,295,253	6.59	10.37
GROUP TOTAL	148,008,469	129,908,382	128,229,977	130,721,134	-11.68	0.63

- Continued -

APPENDIX TABLE 6. NOMINAL TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP (CONTINUED)

City	Nominal Taxable Sales and Purchases				Percent Change	
	1980	1987	1988	1989	1980-89	1987-1989
	dollars					
POPULATION 500 TO 1,000						
BOWBELLS	1,940,641	1,581,165	1,472,148	1,360,762	-29.88	-13.94
BURLINGTON	1,067,851	1,765,061	1,668,702	1,721,602	61.22	-2.46
CENTER	1,485,679	1,432,022	1,557,613	1,602,142	7.84	11.88
DUNSEITH	2,104,641	2,801,012	2,953,202	3,200,031	52.05	14.25
EDGELEY	5,091,569	4,430,133	4,004,582	4,346,211	-14.64	-1.89
ELGIN	3,312,887	3,903,329	3,516,829	3,585,545	8.23	-8.14
EMERADO	1,243,002	2,884,649	2,733,086	2,561,599	106.08	-11.20
FESSENDEN	4,154,247	3,752,763	3,584,269	3,008,660	-27.58	-19.83
FINLEY	2,716,236	2,496,562	2,900,133	2,717,158	0.03	8.84
FORMAN	2,438,692	2,442,550	2,415,702	2,402,572	-1.48	-1.64
FORT YATES	26,262	68,316	24,201	27,115	3.25	-60.31
GWINNER	4,947,500	7,529,717	10,835,879	15,121,901	205.65	100.83
HATTON	2,035,939	1,745,393	1,834,546	1,883,887	-7.47	7.93
KILLDEER	8,580,026	5,762,991	5,951,496	6,699,989	-21.91	16.26
KINDRED	7,066,338	3,824,297	3,739,047	4,216,845	-40.32	10.26
KULM	2,768,340	2,597,769	2,223,485	2,322,911	-16.09	-10.58
LAKOTA	3,951,850	3,668,444	3,538,510	3,614,685	-8.53	-1.47
LEEDS	3,407,559	2,645,778	2,052,191	2,064,052	-39.43	-21.99
LIDGERWOOD	4,822,103	4,822,212	4,424,301	5,531,033	14.70	14.70
LINCOLN	0	516,395	362,044	467,475	.	-9.47
MADDOCK	5,065,977	2,548,488	2,046,909	2,009,377	-60.34	-21.15
MCCLUSKY	2,371,224	1,699,411	1,162,318	1,231,726	-48.06	-27.52
MCVILLE	2,893,945	2,750,629	2,579,504	2,682,962	-7.29	-2.46
MEDINA	1,133,148	636,612	535,881	578,939	-48.91	-9.06
MICHIGAN	7,866,337	5,784,079	5,106,192	6,482,359	-17.59	12.07
MILNOR	4,639,847	3,853,733	3,496,982	4,776,629	2.95	23.95
MINTO	1,169,913	1,945,705	2,163,400	2,614,703	123.50	34.38
NEW ENGLAND	5,588,792	2,280,377	2,518,360	2,932,834	-47.52	28.61
PEMBINA	1,269,902	1,915,925	2,172,926	2,605,187	105.15	35.98
PORTLAND	1,528,481	1,455,576	1,521,288	1,535,509	0.46	5.49
RAY	4,470,374	2,798,545	2,430,678	2,475,415	-44.63	-11.55
RICHARDTON	4,067,510	4,039,476	3,745,015	3,571,749	-12.19	-11.58
ROLETTE	3,766,522	2,362,336	2,205,976	2,271,592	-39.69	-3.84
ST. THOMAS	547,645	746,004	748,755	619,555	13.13	-17.17
STANTON	493,972	558,548	554,631	495,401	0.29	-11.31
STEELE	2,637,742	2,859,946	2,752,886	2,940,170	11.47	2.81
STRASBURG	1,928,323	2,264,755	1,859,717	2,109,908	9.42	-6.84
SURREY	507,410	602,976	574,943	756,073	49.01	25.39
THOMPSON	1,642,338	666,728	650,864	665,714	-59.47	-0.15
TOWNER	2 95,700	2,314,174	2,691,598	2,446,935	-15.50	5.74
TURTLE LAKE	0 794,144	2,722,180	2,458,663	2,360,047	-15.54	-13.30
WESTHOPE	3,603,850	1,951,067	1,939,115	2,045,230	-43.25	4.83
WILTON	933,002	815,439	803,677	776,372	-16.79	-4.79
WYNDMERE	3,510,699	3,455,036	3,018,718	3,768,576	7.35	9.07
ZAP	412,520	243,608	274,772	245,639	-40.45	0.83
GROUP TOTAL	130,900,679	113,943,911	111,805,734	123,454,776	-5.69	8.35
POPULATION 200 TO 500						
ABERCROMBIE	638,945	470,853	415,165	404,939	-36.62	-14.00
ADAMS	875,478	515,930	543,891	585,907	-33.08	13.56
ALEXANDER	1,344,862	540,176	469,198	716,029	-46.76	32.55
ANAMOOSE	1,477,549	1,398,648	1,167,643	1,264,964	-14.39	-9.56
ANETA	611,434	1,022,988	839,360	882,726	44.37	-13.71
ARTHUR	1,835,501	2,186,331	1,679,526	1,930,921	5.20	-11.68
BERTHOLD	2,621,880	2,364,913	1,771,116	2,120,555	-19.12	-10.33
BINFORD	2,213,091	1,362,824	1,187,110	891,163	-59.73	-34.61
BISBEE	615,252	518,868	477,890	551,392	-10.38	6.27
BOWDON	297,996	154,444	171,896	188,793	-36.65	22.24
BUFFALO	881,326	602,246	605,204	609,751	-30.81	1.25
BUXTON	705,687	899,095	831,666	976,859	38.43	8.65
CARPIO	625,705	516,847	423,849	337,405	-46.08	-34.72
CARSON	1,171,346	1,202,436	1,267,082	1,209,554	3.26	0.59
COGSWELL	167,347	226,257	218,581	217,830	30.17	-3.72
COLUMBUS	1,273,375	838,533	865,700	699,700	-45.05	-16.56
CRYSTAL	347,374	746,772	790,811	815,033	134.63	9.14
DES LACS	25,451	48,280	41,086	47,714	87.47	-1.17
DRAKE	1,683,629	744,153	503,126	550,394	-67.31	-26.04
EDINBURG	1,828,670	2,304,469	1,942,925	2,316,599	26.68	0.53
EDMORE	1,330,483	944,412	825,824	828,282	-37.75	-12.30
ESMOND	923,095	622,839	592,706	664,435	-28.02	6.68
FAIRMOUNT	822,723	868,582	903,931	880,160	6.98	1.33
FLASHER	2,437,667	2,306,112	2,049,017	2,063,126	-15.36	-10.54
FORDVILLE	1,362,330	1,042,503	1,001,729	992,956	-27.11	-4.75
GACKLE	1,628,098	1,684,164	1,086,174	1,199,010	-26.36	-28.81

- Continued -

APPENDIX TABLE 6. NOMINAL TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP (CONTINUED)

City	Nominal Taxable Sales and Purchases				Percent Change	
	1980	1987	1988	1989	1980-1989	1987-1989
	dollars					
POPULATION 200 TO 500 (Continued)						
GILBY	1,939,470	961,344	818,470	970,215	-49.98	0.92
GLADSTONE	251,214	396,055	407,901	454,169	80.79	14.67
GLENBURN	1,030,241	966,733	892,009	779,371	-24.35	-19.38
GOLDEN VALLEY	394,072	289,778	253,103	250,740	-36.37	-13.47
GOODRICH	546,211	570,734	487,241	457,761	-16.19	-19.79
GRANDIN	1,281,727	857,605	759,355	920,555	-28.18	7.34
GRANVILLE	363,902	292,042	254,923	246,452	-32.28	-15.61
GRENORA	2,390,470	1,810,627	1,490,178	1,442,418	-39.66	-20.34
HALLIDAY	1,650,139	1,273,152	851,762	901,917	-45.34	-29.16
HANNAFORD	505,776	503,932	472,620	458,555	-9.34	-9.00
HARWOOD	834,426	1,496,458	1,149,511	1,471,541	76.35	-1.67
HAZELTON	779,153	1,179,159	785,906	897,423	15.18	-23.89
HOOPLE	2,699,943	2,038,869	1,808,721	1,903,187	-29.51	-6.65
HOPE	2,431,684	1,136,093	1,158,573	1,010,234	-58.46	-11.08
HORACE	515,116	706,630	734,346	820,101	59.21	16.06
HUNTER	3,271,313	3,157,306	2,672,757	3,498,703	6.95	10.81
KENSAL	363,699	291,084	239,399	220,916	-39.26	-24.11
LANSFORD	1,618,687	432,148	446,725	439,956	-72.82	1.81
LEHR	900,321	486,974	449,456	406,123	-54.89	-16.60
LEONARD	792,378	778,343	795,835	751,551	-5.15	-3.44
LIGNITE	954,794	1,929,944	1,734,622	1,353,060	41.71	-29.89
LITCHVILLE	2,157,408	1,376,418	1,219,362	1,554,251	-27.96	12.92
MANVEL	515,946	703,842	867,368	938,162	81.83	33.29
MAPLETON	310,552	440,100	409,507	363,711	17.12	-17.36
MARION	361,149	421,458	398,802	409,858	13.49	-2.75
MAX	713,679	742,147	669,691	650,806	-8.81	-12.31
MINNEWAUKAN	717,828	281,305	358,621	324,010	-54.86	15.18
MOORETON	925,222	453,305	515,348	553,483	-40.18	22.10
MUNICH	2,195,906	1,575,222	1,275,723	974,210	-55.64	-38.15
NECHE	605,843	826,573	690,462	827,611	36.60	0.13
NEW LEIPZIG	1,941,039	1,611,907	1,250,834	1,329,643	-31.50	-17.51
NOONAN	431,556	478,106	552,970	932,837	116.16	95.11
OSNABROCK	578,352	517,322	354,445	402,101	-30.47	-22.27
PAGE	2,339,076	2,859,125	2,463,747	2,262,970	-3.25	-20.85
PETERSBURG	728,081	460,979	386,491	330,590	-54.59	-28.29
PLAZA	658,383	785,905	792,637	802,163	21.84	2.07
PORTAL	355,828	585,116	610,442	564,340	58.60	-3.55
POWERS LAKE	2,257,646	2,101,850	2,067,545	1,983,188	-12.16	-5.65
REEDER	1,131,262	747,877	715,925	688,488	-39.14	-7.94
REGENT	1,704,191	1,656,437	1,540,553	1,565,566	-8.13	-5.49
REYNOLDS	770,409	904,327	849,436	881,168	14.38	-2.56
RHAME	633,945	613,863	585,265	503,887	-20.52	-17.92
RIVERSIDE	0	1,264,788	1,362,155	1,107,745	.	-12.42
ROCKLAKE	1,489,839	622,781	580,503	856,971	-42.48	37.60
RUTLAND	542,172	561,670	490,020	683,413	26.05	21.68
SANBORN	594,344	371,523	321,517	352,221	-40.74	-5.20
SAWYER	640,911	344,007	507,202	679,414	6.01	97.50
SCRANTON	1,480,627	1,701,410	1,577,353	1,509,951	1.98	-11.25
SELFRIDGE	325,291	345,126	320,746	306,227	-5.86	-11.27
SHERWOOD	1,285,834	1,263,630	1,148,829	1,269,496	-1.27	0.46
SHEYENNE	1,877,909	1,153,898	1,044,670	1,161,478	-38.15	0.66
SOUTH HEART	752,405	626,246	592,266	653,288	-13.17	4.32
ST. JOHN	447,973	577,258	668,928	695,078	55.16	20.41
STARKWEATHER	344,223	223,951	208,799	230,363	-33.08	2.86
STREETER	767,355	473,005	439,724	331,313	-56.82	-29.96
TAPPEN	958,685	975,445	905,890	1,045,819	9.09	7.21
TAYLOR	375,977	528,703	549,198	559,362	48.78	5.80
TOLNA	1,044,699	997,108	1,040,297	1,158,482	10.89	16.18
TOWER CITY	1,969,249	957,109	931,342	1,067,597	-45.79	11.54
TUTTLE	421,025	318,643	315,020	337,820	-19.76	6.02
UPHAM	319,810	280,328	294,703	346,454	8.33	23.59
WILDROSE	584,409	759,318	746,903	732,893	25.41	-3.48
WILLOW	1,224,320	1,007,870	936,800	993,405	-18.86	-1.44
WIMBLEDON	3,906,364	3,761,255	2,644,553	3,367,906	-13.78	-10.46
WING	643,002	657,131	645,262	672,441	4.58	2.33
ZEELAND	839,860	544,717	503,741	521,588	-37.90	-4.25
GROUP TOTAL	100,130,614	88,148,789	78,687,214	83,084,913	-17.02	-5.74
IN-STATE TOTAL	2,633,608,161	2,992,009,455	3,042,297,299	3,259,412,427	23.76	8.94

APPENDIX TABLE 7. DEFLATED TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP

City	Deflated Taxable Sales and Purchases (1989 Dollars)				Percent Change	
	1980	1987	1988	1989	1980-89	1987-89
	dollars					
POPULATION OVER 10,000						
BISMARCK	473,728,420	434,129,473	443,672,114	458,447,623	-3.23	5.60
DICKINSON	219,686,439	127,742,554	125,612,492	124,969,545	-43.11	-2.17
FARGO	679,242,263	697,764,245	715,553,868	737,803,337	8.62	5.74
GRAND FORKS	345,823,249	417,195,195	412,362,347	432,857,077	25.17	3.75
JAMESTOWN	137,549,483	113,702,885	106,391,230	106,926,991	-22.26	-5.96
MANDAN	103,775,472	82,527,988	75,007,976	78,038,107	-24.80	-5.44
MINOT	348,833,231	325,619,998	313,673,453	319,240,924	-8.48	-1.96
WEST FARGO	31,210,008	30,004,495	31,275,253	35,155,072	12.64	17.17
WILLISTON	238,932,594	108,961,773	107,828,310	103,561,002	-56.66	-4.96
GROUP TOTAL	2,578,781,160	2,337,648,605	2,331,377,043	2,396,999,678	-7.05	2.54
POPULATION 2,500 TO 10,000						
BEULAH	21,109,496	13,690,513	13,012,519	13,789,391	-34.68	0.72
BOTTINEAU	35,721,366	20,603,595	18,533,118	18,404,403	-48.48	-10.67
CARRINGTON	31,294,111	20,160,691	18,331,313	19,453,390	-37.84	-3.51
DEVILS LAKE	82,959,489	75,131,207	71,611,297	71,490,321	-13.83	-4.85
GRAFTON	49,064,196	44,218,845	39,762,476	42,582,528	-13.21	-3.70
HARVEY	26,336,412	18,606,611	15,848,584	15,490,268	-41.18	-16.75
RUGBY	30,349,378	22,029,173	20,801,817	23,437,887	-22.77	6.39
VALLEY CITY	64,593,431	47,077,069	43,008,925	41,925,021	-35.09	-10.94
WAHPETON	57,303,733	53,978,847	52,375,869	52,301,959	-8.73	-3.11
GROUP TOTAL	398,731,612	315,496,552	293,285,919	298,875,168	-25.04	-5.27
POPULATION 1500 TO 2500						
BOWMAN	22,101,383	15,334,090	13,446,351	13,670,286	-38.15	-10.85
CASSELTON	13,845,910	8,548,286	7,590,262	7,453,485	-46.17	-12.81
CAVALIER	19,471,384	17,158,747	15,620,330	17,211,421	-11.61	0.31
ELLENDALE	11,948,031	5,855,283	5,266,315	5,820,123	-51.29	-0.60
GARRISON	15,231,714	9,777,949	8,680,668	8,063,061	-47.06	-17.54
HAZEN	15,750,869	11,771,841	11,673,256	10,495,380	-33.37	-10.84
HETTINGER	15,405,076	12,854,192	11,901,480	11,893,179	-22.80	-7.48
HILLSBORO	8,795,876	8,978,895	7,507,448	8,232,379	-6.41	-8.31
LANGDON	26,352,679	19,015,503	17,785,321	17,544,619	-33.42	-7.74
LARIMORE	7,065,247	5,441,009	4,529,865	4,020,338	-43.10	-26.11
LINTON	12,237,182	8,087,687	7,657,795	7,828,082	-36.03	-3.21
LISBON	19,839,136	19,597,810	17,428,022	19,565,434	-1.38	-0.17
MAYVILLE	16,481,639	12,116,595	11,714,814	11,216,517	-31.95	-7.43
NEW ROCKFORD	13,554,343	6,301,923	5,587,265	5,193,208	-61.69	-17.59
OAKES	21,052,513	12,100,125	11,268,136	11,900,182	-43.47	-1.65
PARK RIVER	12,803,271	8,560,013	7,739,502	7,755,265	-39.43	-10.45
ROLLA	18,018,874	13,741,231	12,978,898	12,601,335	-30.07	-8.30
STANLEY	14,342,680	8,966,972	8,899,768	8,751,972	-38.98	-2.40
TIOGA	90,503,213	20,193,427	16,810,231	13,025,277	-85.61	-35.50
WASHBURN	12,428,970	10,210,881	8,704,780	8,432,312	-32.16	-17.42
WATFORD CITY	28,382,678	16,871,527	16,852,475	15,602,903	-45.03	-7.52
GROUP TOTAL	415,612,668	251,583,986	229,642,982	226,276,758	-45.56	-10.06
POPULATION 1,000 TO 1,500						
ASHLEY	5,898,217	4,972,359	4,204,372	4,323,835	-26.69	-13.04
BEACH	11,632,068	8,756,449	7,303,347	7,277,628	-37.43	-16.89
BELFIELD	11,428,844	4,975,001	4,732,961	4,540,025	-60.28	-8.74
CANDO	15,032,301	7,930,244	6,171,061	6,214,370	-58.66	-21.64
COOPERSTOWN	14,752,326	10,122,606	9,863,044	10,094,243	-31.58	-0.28
CROSBY	12,583,370	6,837,998	6,292,547	5,563,185	-55.79	-18.64
DRAYTON	5,162,669	5,148,886	4,820,485	4,568,724	-11.50	-11.27
ENDERLIN	6,172,222	3,644,095	8,212,094	4,436,799	-28.12	21.75
GLEN ULLIN	5,326,720	3,880,956	3,480,524	3,497,143	-34.35	-9.89
HANKINSON	6,512,856	4,479,515	4,198,126	4,486,050	-31.12	0.15
HEBRON	4,717,406	2,348,917	2,343,149	2,287,821	-51.50	-2.60
KENMARE	18,247,047	9,783,574	8,507,577	8,353,065	-54.22	-14.62
LAMOURE	10,611,993	7,464,904	6,641,263	7,726,092	-27.19	3.50
MOHALL	12,744,987	7,736,317	8,288,486	7,468,209	-41.40	-3.47
MOTT	9,878,092	5,569,502	4,731,740	4,329,037	-56.18	-22.27
NAPOLEON	9,159,048	6,495,609	5,424,505	5,322,539	-41.89	-18.06
NEW SALEM	8,115,443	5,159,948	4,796,393	4,729,589	-41.72	-8.34
NEW TOWN	4,145,557	3,262,502	2,846,712	2,629,201	-36.58	-19.41
NORTHWOOD	16,172,391	9,655,663	10,752,211	10,978,981	-32.11	13.71
PARSHALL	3,471,710	1,817,812	1,674,806	1,621,848	-53.28	-10.78
UNDERWOOD	7,915,982	4,657,858	3,555,865	3,092,794	-60.93	-33.60
VELVA	6,537,160	4,635,494	4,169,053	4,623,679	-29.27	-0.25
WALHALLA	6,234,193	5,305,575	4,654,307	5,261,024	-15.61	-0.84
WISHEK	10,300,143	7,218,169	6,720,388	7,295,253	-29.17	1.07
GROUP TOTAL	222,752,746	141,859,953	134,385,016	130,721,134	-41.32	-7.85

- Continued -

APPENDIX TABLE 7. DEFLATED TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP (CONTINUED)

City	Deflated Taxable Sales and Purchases (1989 Dollars)				Percent Change	
	1980	1987	1988	1989	1980-89	1987-1989
	dollars					
POPULATION 500 TO 1,000						
BOWBELLS	2,920,665	1,726,632	1,542,811	1,360,762	-53.41	-21.19
BURLINGTON	1,607,116	1,927,447	1,748,800	1,721,602	7.12	-10.68
CENTER	2,235,947	1,563,768	1,632,378	1,602,142	-28.35	2.45
DUNSEITH	3,167,485	3,058,705	3,094,956	3,200,031	1.03	4.62
EDGELEY	7,662,811	4,837,705	4,196,802	4,346,211	-43.28	-10.16
ELGIN	4,985,895	4,262,435	3,685,637	3,585,545	-28.09	-15.88
EMERADO	1,870,718	3,150,037	2,864,274	2,561,599	36.93	-18.68
FESSENDEN	6,252,142	4,098,017	3,756,314	3,008,660	-51.88	-26.58
FINLEY	4,087,935	2,726,246	3,039,339	2,717,158	-33.53	-0.33
FORMAN	3,670,231	2,667,265	2,531,656	2,402,572	-34.54	-9.92
FORT YATES	39,524	74,601	25,363	27,115	-31.40	-63.65
GWINNER	7,445,987	8,222,451	11,356,001	15,121,901	103.09	83.91
HATTON	3,064,088	1,905,969	1,922,604	1,883,887	-38.52	-1.16
KILLDEER	12,912,939	6,293,186	6,237,168	6,699,989	-48.11	6.46
KINDRED	10,634,839	4,176,132	3,918,521	4,216,845	-60.35	0.97
KULM	4,166,352	2,836,764	2,330,212	2,322,911	-44.25	-18.11
LAKOTA	5,947,534	4,005,941	3,708,358	3,614,685	-39.22	-9.77
LEEDS	5,128,376	2,889,190	2,150,696	2,064,052	-59.75	-28.56
LIDGERWOOD	7,257,265	5,265,856	4,636,667	5,531,033	-23.79	5.04
LINCOLN	.	563,903	379,422	467,475	.	-17.10
MADDOCK	7,624,295	2,782,949	2,145,161	2,009,377	-73.65	-27.80
MCCLUSKY	3,568,692	1,855,757	1,218,109	1,231,726	-65.49	-33.63
MCVILLE	4,355,387	3,003,687	2,703,320	2,682,962	-38.40	-10.68
MEDINA	1,705,388	695,180	561,603	578,939	-66.05	-16.72
MICHIGAN	11,838,837	6,316,214	5,351,289	6,482,359	-45.24	2.63
MILNOR	6,982,970	4,208,276	3,664,837	4,776,629	-31.60	13.51
MINTO	1,760,719	2,124,710	2,267,243	2,614,703	48.50	23.06
NEW ENGLAND	8,411,132	2,490,172	2,639,241	2,932,834	-65.13	17.78
PEMBINA	1,911,203	2,092,190	2,277,226	2,605,187	36.31	24.52
PORTLAND	2,300,364	1,589,489	1,594,310	1,535,509	-33.25	-3.40
RAY	6,727,913	3,056,011	2,547,351	2,475,415	-63.21	-19.00
RICHARDTON	6,121,603	4,411,108	3,924,776	3,571,749	-41.65	-19.03
ROLETTE	5,668,616	2,579,671	2,311,863	2,271,592	-59.93	-11.94
ST. THOMAS	824,206	816,820	784,695	619,555	-24.83	-24.15
STANTON	743,428	609,934	581,253	495,401	-33.36	-18.78
STEELE	3,969,802	3,123,061	2,885,025	2,940,170	-25.94	-5.86
STRASBURG	2,902,126	2,473,112	1,948,983	2,109,908	-27.30	-14.69
SURREY	763,652	658,450	602,540	756,073	-0.99	14.83
THOMPSON	2,471,719	728,067	682,105	665,714	-73.07	-8.56
TOWNER	4,358,028	2,527,078	2,820,795	2,446,935	-43.85	-3.17
TURTLE LAKE	4,205,187	2,972,621	2,576,679	2,360,047	-43.88	-20.61
WESTHOPE	5,423,794	2,130,565	2,032,193	2,045,230	-62.29	-4.01
WILTON	1,404,168	890,459	842,253	776,372	-44.71	-12.81
WYNDMERE	5,283,602	3,772,899	3,163,616	3,768,576	-28.67	-0.11
ZAP	620,843	266,020	287,961	245,639	-60.43	-7.66
GROUP TOTAL	197,005,522	124,426,751	117,172,409	123,454,776	-37.33	-0.78
POPULATION 200 TO 500						
ABERCROMBIE	961,612	514,171	435,093	404,939	-57.89	-21.24
ADAMS	1,317,594	563,396	569,998	585,907	-55.53	4.00
ALEXANDER	2,024,017	589,872	491,720	716,029	-64.62	21.39
ANAMOOSE	2,223,711	1,527,324	1,223,690	1,264,964	-43.11	-17.18
ANETA	920,208	1,117,103	879,649	882,726	-4.07	-20.98
ARTHUR	2,762,429	2,387,473	1,760,143	1,930,921	-30.10	-19.12
BERTHOLD	3,945,929	2,582,485	1,856,130	2,120,555	-46.26	-17.89
BINFORD	3,330,702	1,488,204	1,244,091	891,163	-73.24	-40.12
BISBEE	925,954	566,604	500,829	551,392	-40.45	-2.68
BOWDON	448,484	168,653	180,147	188,793	-57.90	11.94
BUFFALO	1,326,396	657,653	634,254	609,751	-54.03	-7.28
BUXTON	1,062,059	981,812	871,586	976,859	-8.02	-0.50
CARPIO	941,686	564,397	444,194	337,405	-64.17	-40.22
CARSON	1,762,876	1,313,060	1,327,902	1,209,554	-31.39	-7.88
COGSWELL	251,857	247,073	229,073	217,830	-13.51	-11.84
COLUMBUS	1,916,429	915,678	907,254	699,700	-63.49	-23.59
CRYSTAL	522,798	815,475	828,770	815,033	55.90	-0.05
DES LACS	38,304	52,722	43,058	47,714	24.57	-9.50
DRAKE	2,533,862	812,615	527,276	550,394	-78.28	-32.27
EDINBURG	2,752,148	2,516,480	2,036,185	2,316,599	-15.83	-7.94
EDMORE	2,002,377	1,031,298	865,464	828,282	-58.64	-19.69
ESMOND	1,389,258	680,140	621,156	664,435	-52.17	-2.31
FAIRMOUNT	1,238,198	948,492	947,320	880,160	-28.92	-7.20
FLASHER	3,668,689	2,518,274	2,147,370	2,063,126	-43.76	-18.07
FORDVILLE	2,050,307	1,138,413	1,049,812	992,956	-51.57	-12.78
GACKLE	2,450,287	1,839,107	1,138,310	1,199,010	-51.07	-34.80
GILBY	2,918,902	1,049,788	857,757	970,215	-66.76	-7.58

- Continued -

APPENDIX TABLE 7. DEFLATED TAXABLE SALES AND PURCHASES BY POPULATION SIZE GROUP (CONTINUED)

City	Deflated Taxable Sales and Purchases (1989 Dollars) 1980	1987	1988	1989	Percent Change 1980-89	1987-1989
	dollars					
POPULATION 200 TO 500						
GLADSTONE	378,077	432,492	427,480	454,169	20.13	5.01
GLENBURN	1,550,513	1,055,672	934,825	779,371	-49.73	-26.17
GOLDEN VALLEY	593,078	316,438	265,252	250,740	-57.72	-20.76
GOODRICH	822,048	623,242	510,629	457,761	-44.31	-26.55
GRANDIN	1,928,999	936,505	795,804	920,555	-52.28	-1.70
GRANVILLE	547,673	318,910	267,159	246,452	-55.00	-22.72
GRENORA	3,597,657	1,977,205	1,561,707	1,442,418	-59.91	-27.05
HALLIDAY	2,483,459	1,390,282	892,647	901,917	-63.68	-35.13
HANNAFORD	761,193	550,294	495,306	458,555	-39.76	-16.67
HARWOOD	1,255,811	1,634,132	1,204,688	1,471,541	17.18	-9.95
HAZELTON	1,172,625	1,287,642	823,629	897,423	-23.47	-30.30
HOOPLE	4,063,414	2,226,445	1,895,540	1,903,187	-53.16	-14.52
HOPE	3,659,684	1,240,614	1,214,185	1,010,234	-72.40	-18.57
HORACE	775,250	771,640	769,595	820,101	5.79	6.28
HUNTER	4,923,326	3,447,778	2,801,049	3,498,703	-28.94	1.48
KENSAL	547,367	317,864	250,890	220,916	-59.64	-30.50
LANSFORD	2,436,124	471,906	468,168	439,956	-81.94	-6.77
LEHR	1,354,983	531,776	471,030	406,123	-70.03	-23.63
LEONARD	1,192,529	849,951	834,035	751,551	-36.98	-11.58
LIGNITE	1,436,965	2,107,499	1,817,884	1,353,060	-5.84	-35.80
LITCHVILLE	3,246,899	1,503,048	1,277,891	1,554,251	-52.13	3.41
MANVEL	776,499	768,595	909,002	938,162	20.82	22.06
MAPLETON	467,381	480,589	429,163	363,711	-22.18	-24.32
MARION	543,529	460,232	417,944	409,858	-24.59	-10.95
MAX	1,074,087	810,425	701,836	650,806	-39.41	-19.70
MINNEWAUKAN	1,080,331	307,185	375,835	324,010	-70.01	5.48
MOORETON	1,392,459	495,009	540,085	553,483	-60.25	11.81
MUNICH	3,304,839	1,720,142	1,336,958	974,210	-70.52	-43.36
NECHE	911,794	902,618	723,604	827,611	-9.23	-8.31
NEW LEIPZIG	2,921,264	1,760,202	1,310,874	1,329,643	-54.48	-24.46
NOONAN	649,492	522,092	579,513	932,837	43.63	78.67
OSNABROCK	870,420	564,916	371,458	402,101	-53.80	-28.82
PAGE	3,520,309	3,122,164	2,582,007	2,262,970	-35.72	-27.52
PETERSBURG	1,095,762	503,389	405,043	330,590	-69.83	-34.33
PLAZA	990,866	858,208	830,684	802,163	-19.04	-6.53
PORTAL	535,521	638,947	639,743	564,340	5.38	-11.68
POWERS LAKE	3,397,757	2,295,220	2,166,787	1,983,188	-41.63	-13.59
REEDER	1,702,549	816,682	750,289	688,488	-59.56	-15.70
REGENT	2,564,807	1,808,829	1,614,500	1,565,566	-38.96	-13.45
REYNOLDS	1,159,466	987,525	890,209	881,168	-24.00	-10.77
RHAME	954,087	670,338	613,358	503,887	-47.19	-24.83
RIVERSIDE	.	1,381,148	1,427,538	1,107,745	.	-19.80
ROCKLAKE	2,242,208	680,077	608,367	856,971	-61.78	26.01
RUTLAND	815,969	613,344	513,541	683,413	-16.25	11.42
SANBORN	894,488	405,703	336,950	352,221	-60.62	-13.18
SAWYER	964,571	375,656	531,548	679,414	-29.56	80.86
SCRANTON	2,228,344	1,857,940	1,653,066	1,509,951	-32.24	-18.73
SELFRIDGE	489,563	376,878	336,142	306,227	-37.45	-18.75
SHERWOOD	1,935,180	1,379,884	1,203,973	1,269,496	-34.40	-8.00
SHEYENNE	2,826,253	1,260,057	1,094,814	1,161,478	-58.90	-7.82
SOUTH HEART	1,132,370	683,861	620,695	653,288	-42.31	-4.47
ST. JOHN	674,199	630,366	701,037	695,078	3.10	10.27
STARKWEATHER	518,056	244,554	218,821	230,363	-55.53	-5.80
STREETER	1,154,869	516,521	460,831	331,313	-71.31	-35.86
TAPPEN	1,442,821	1,065,186	949,373	1,045,819	-27.52	-1.82
TAYLOR	565,845	577,344	575,560	559,362	-1.15	-3.11
TOLNA	1,572,272	1,088,842	1,090,231	1,158,482	-26.32	6.40
TOWER CITY	2,963,720	1,045,163	976,046	1,067,597	-63.98	2.15
TUTTLE	633,643	347,958	330,141	337,820	-46.69	-2.91
UPHAM	481,314	306,118	308,849	346,454	-28.02	13.18
WILDROSE	879,536	829,175	782,754	732,893	-16.67	-11.61
WILLOW	1,842,602	1,100,594	981,766	993,405	-46.09	-9.74
WIMBLEDON	5,879,078	4,107,290	2,771,492	3,367,906	-42.71	-18.00
WING	967,718	717,587	676,235	672,441	-30.51	-6.29
ZEELAND	1,263,989	594,831	527,921	521,588	-58.73	-12.31
GROUP TOTAL	150,696,574	96,258,478	82,464,200	83,084,913	-44.87	-13.69
IN-STATE TOTAL	3,963,580,282	3,267,274,325	3,188,327,569	3,259,412,427	-17.77	-0.24

APPENDIX TABLE 8. PULL FACTORS BY POPULATION SIZE GROUP

City	Pull Factor 1980	1987	1988	1989	Percent Change 1980-87	1980-89	1987-89
POPULATION OVER 10,000							
BISMARCK	1.15	1.21	1.26	1.81	5.12	57.26	49.60
DICKINSON	1.50	1.07	1.12	0.93	-28.66	-37.92	-12.97
FARGO	*	*	*	*	*	*	*
GRAND FORKS	*	*	*	*	*	*	*
JAMESTOWN	0.82	0.91	0.87	0.82	11.11	-0.01	-10.00
MANDAN	0.75	0.74	0.68	0.60	-0.58	-20.14	-19.68
MINOT	0.82	0.93	0.93	0.85	14.23	3.45	-9.44
WEST FARGO	*	*	*	*	*	*	*
WILLISTON	1.68	0.89	1.03	1.06	-46.77	-36.58	19.13
AVERAGE	1.12	0.96	0.98	1.01	-14.20	-9.63	5.32
POPULATION 2,500 TO 10,000							
BEULAH	0.63	0.33	0.33	0.39	-47.36	-37.67	18.41
BOTTINEAU	0.90	0.64	0.61	0.53	-28.78	-41.10	-17.31
CARRINGTON	0.88	0.80	0.79	0.68	-8.72	-23.02	-15.67
DEVILS LAKE	0.73	0.86	0.82	0.80	16.91	9.34	-6.48
GRAFTON	0.84	0.86	0.82	0.70	2.69	-16.60	-18.78
HARVEY	0.74	0.67	0.61	0.47	-9.79	-36.86	-30.01
RUGBY	0.88	0.80	0.83	0.70	-9.32	-19.96	-11.73
VALLEY CITY	0.77	0.78	0.74	0.59	2.04	-23.59	-25.13
WAHPETON	0.76	0.79	0.80	0.86	3.64	12.61	8.66
AVERAGE	0.79	0.73	0.71	0.64	-8.40	-19.82	-12.47
POPULATION 1500 TO 2500							
BOWMAN	0.74	0.66	0.62	0.53	-11.93	-28.86	-19.22
CASSELTON	0.44	0.35	0.31	0.41	-21.53	-6.54	19.10
CAVALIER	0.58	0.62	0.58	0.63	8.23	9.62	1.28
ELLENDALE	0.69	0.43	0.42	0.31	-38.48	-55.69	-27.99
GARRISON	0.72	0.61	0.59	0.45	-16.18	-38.36	-26.46
HAZEN	0.48	0.37	0.38	0.38	-23.05	-20.91	2.78
HETTINGER	0.89	0.95	0.96	0.72	6.16	-19.42	-24.10
HILLSBORO	0.47	0.63	0.56	0.58	34.16	24.48	-7.21
LANGDON	0.68	0.63	0.63	0.70	-8.31	2.82	12.14
LARIMORE	0.37	0.36	0.30	0.27	-2.71	-25.76	-23.69
LINTON	0.58	0.44	0.44	0.31	-23.96	-47.24	-30.62
LISBON	0.74	0.92	0.86	0.77	23.25	3.88	-15.72
MAYVILLE	0.58	0.56	0.59	0.54	-2.95	-6.83	-4.00
NEW ROCKFORD	0.66	0.40	0.38	0.33	-39.63	-50.99	-18.82
OAKES	0.94	0.68	0.69	0.48	-27.49	-48.53	-29.02
PARK RIVER	0.53	0.43	0.41	0.33	-17.84	-38.26	-24.85
ROLLA	1.18	1.14	1.19	0.45	-3.22	-61.52	-60.24
STANLEY	0.62	0.46	0.50	0.35	-26.19	-42.71	-22.39
TIOGA	4.80	1.28	1.14	0.95	-73.21	-80.29	-26.43
WASHBURN	0.98	1.05	0.95	0.76	7.32	-22.91	-28.17
WATFORD CITY	1.07	0.75	0.84	0.58	-30.52	-45.89	-22.11
AVERAGE	0.89	0.65	0.63	0.52	-26.93	-42.26	-20.99
POPULATION 1,000 TO 1,500							
ASHLEY	0.51	0.54	0.49	0.36	4.29	-29.08	-32.00
BEACH	0.76	0.69	0.62	0.58	-9.85	-23.69	-15.35
BELFIELD	1.03	0.51	0.51	0.41	-50.11	-59.68	-19.20
CANDO	0.72	0.49	0.40	0.35	-32.84	-51.17	-27.29
COOPERSTOWN	0.69	0.64	0.65	0.50	-7.50	-27.78	-21.93
CROSBY	0.58	0.41	0.41	0.39	-29.78	-33.22	-4.89
DRAYTON	0.51	0.59	0.57	0.53	15.91	5.46	-9.02
ENDERLIN	0.40	0.31	0.72	0.31	-23.39	-22.39	1.30
GLEN ULLIN	0.44	0.42	0.40	0.34	-4.15	-23.50	-20.19
HANKINSON	0.51	0.44	0.44	0.51	-12.86	-0.94	13.67
HEBRON	0.27	0.18	0.18	0.15	-34.92	-45.49	-16.25
KENMARE	0.89	0.69	0.63	0.56	-2[illegible].70	-37.81	-19.55
LAMOURE	0.96	0.80	0.75	0.65	-16.47	-31.81	-18.37
MOHALL	0.90	0.75	0.89	0.57	-17.00	-37.03	-24.12
MOTT	0.69	0.49	0.46	0.29	-29.28	-58.03	-40.66
NAPOLEON	0.99	0.88	0.77	0.39	-10.57	-60.18	-55.48
NEW SALEM	0.53	0.43	0.41	0.34	-20.18	-36.78	-20.80
NEW TOWN	0.42	0.38	0.35	0.24	-10.77	-44.20	-37.47
NORTHWOOD	1.22	0.91	1.01	1.08	-25.69	+11.78	18.72
PARSHALL	0.32	0.21	0.20	0.14	-36.46	-56.49	-31.53
UNDERWOOD	0.58	0.44	0.38	0.27	-24.05	-52.80	-37.85
VELVA	0.50	0.47	0.44	0.27	-5.57	-45.98	-42.80
WALHALLA	0.45	0.48	0.44	0.49	5.85	9.71	3.65
WISHEK	0.75	0.65	0.65	0.52	-13.26	-31.63	-21.18
AVERAGE	0.65	0.53	0.53	0.43	-18.35	-34.55	-19.84

- Continued -

APPENDIX TABLE 8. PULL FACTORS BY POPULATION SIZE GROUP (CONTINUED)

City	Pull Factor				Percent Change		
	1980	1987	1988	1989	1980-87	1980-89	1987-89
POPULATION 500 TO 1,000							
BOWBELLS	0.60	0.50	0.49	0.29	-15.94	-51.73	-42.58
BURLINGTON	*	*	*	*	*	*	*
CENTER	0.24	0.19	0.21	0.18	-19.24	-24.24	-6.19
DUNSEITH	0.29	0.30	0.35	0.14	5.58	-50.27	-52.90
EDGELEY	1.05	0.90	0.84	0.65	-14.00	-38.05	-27.97
ELGIN	0.61	0.57	0.54	0.29	-7.18	-52.85	-49.21
EMERADO	*	*	*	*	*	*	*
FESSENDEN	0.74	0.64	0.60	0.37	-13.82	-49.86	-41.82
FINLEY	0.40	0.33	0.39	0.46	-17.36	15.08	39.25
FORMAN	0.29	0.26	0.26	0.22	-8.92	-23.68	-16.20
FORT YATES	*	*	*	*	*	*	*
GWINNER	1.55	2.08	2.96	3.48	34.41	125.13	67.49
HATTON	0.29	0.24	0.25	0.23	-15.37	-19.05	-4.34
KILLDEER	1.40	0.85	0.93	0.63	-39.60	-54.87	-25.28
KINDRED	*	*	*	*	*	*	*
KULM	0.70	0.58	0.51	0.38	-17.90	-45.73	-33.90
LAKOTA	0.41	0.39	0.40	0.27	-5.98	-34.95	-30.81
LEEDS	0.96	0.70	0.63	0.34	-26.88	-64.69	-51.72
LIDGERWOOD	0.56	0.53	0.49	0.63	-5.51	13.91	20.54
LINCOLN	*	*	*	*	*	*	*
MADDOCK	0.85	0.44	0.37	0.19	-48.51	-77.28	-55.87
MCCLUSKY	0.54	0.40	0.28	0.16	-25.24	-69.42	-59.09
MCVILLE	0.36	0.34	0.32	0.22	-4.23	-38.15	-35.42
MEDINA	0.26	0.15	0.13	0.12	-41.01	-52.68	-19.78
MICHIGAN	*	*	*	*	*	*	*
MILNOR	0.82	0.60	0.53	0.61	-27.39	-25.34	2.83
MINTO	0.19	0.25	0.28	0.25	34.20	34.34	0.10
NEW ENGLAND	1.01	0.39	0.45	0.34	-61.25	-66.16	-12.66
PEMBINA	0.18	0.25	0.28	0.32	36.83	70.69	24.75
PORTLAND	0.42	0.41	0.41	0.38	-4.51	-10.17	-5.92
RAY	0.97	0.56	0.49	0.51	-42.07	-47.82	-9.92
RICHARDTON	0.65	0.60	0.54	0.42	-8.35	-35.92	-30.08
ROLETTE	0.82	0.46	0.40	0.16	-43.60	-81.13	-66.54
ST. THOMAS	*	*	*	*	*	*	*
STANTON	*	*	*	*	*	*	*
STEELE	0.43	0.42	0.40	0.19	-2.79	-56.88	-55.64
STRASBURG	*	*	*	*	*	*	*
SURREY	*	*	*	*	*	*	*
THOMPSON	*	*	*	*	*	*	*
TOWNER	0.47	0.37	0.44	0.21	-21.14	-55.68	-43.79
TURTLE LAKE	0.37	0.37	0.34	0.26	-1.64	-30.88	-29.73
WESTHOPE	0.56	0.28	0.31	0.28	-49.40	-50.69	-2.55
WILTON	0.12	0.09	0.09	0.07	-20.63	-41.00	-25.66
WYNDMERE	0.73	0.63	0.53	0.68	-13.31	-6.88	7.42
ZAP	*	*	*	*	*	*	*
AVERAGE	0.60	0.49	0.50	0.42	-18.94	-29.78	-13.38
POPULATION 200 TO 500							
ABERCROMBIE	*	*	*	*	*	*	*
ADAMS	0.18	0.09	0.10	0.08	-49.29	-55.08	-11.43
ALEXANDER	*	*	*	*	*	*	*
ANAMOOSE	*	*	*	*	*	*	*
ANETA	*	*	*	*	*	*	*
ARTHUR	0.48	0.56	0.43	0.63	14.83	30.69	13.81
BERTHOLD	0.63	0.58	0.42	0.42	-7.53	-32.51	-27.01
BINFORD	*	*	*	*	*	*	*
BISBEE	0.31	0.25	0.25	0.24	-18.95	-22.23	-4.05
BOWDON	*	*	*	*	*	*	*
BUFFALO	*	*	*	*	*	*	*
BUXTON	*	*	*	*	*	*	*
CARPIO	*	*	*	*	*	*	*
CARSON	0.31	0.25	0.27	0.14	-18.97	-56.48	-46.29
COGSWELL	*	*	*	*	*	*	*
COLUMBUS	0.31	0.20	0.23	0.12	-36.42	-62.10	-40.39
CRYSTAL	*	*	*	*	*	*	*
DES LACS	*	*	*	*	*	*	*
DRAKE	0.36	0.16	0.12	0.07	-54.49	-81.61	-59.59
EDINBURG	*	*	*	*	*	*	*
EDMORE	0.26	0.18	0.17	0.16	-31.55	-36.98	-7.93
ESMOND	*	*	*	*	*	*	*
FAIRMOUNT	0.25	0.25	0.25	0.25	0.40	0.54	0.14
FLASHER	0.42	0.37	0.32	0.26	-12.91	-39.69	-30.74
FORDVILLE	*	*	*	*	*	*	*
GACKLE	0.61	0.60	0.39	0.21	-2.07	-65.74	-65.02
GILBY	*	*	*	*	*	*	*
GLADSTONE	0.05	0.07	0.07	0.06	46.61	37.44	-6.26

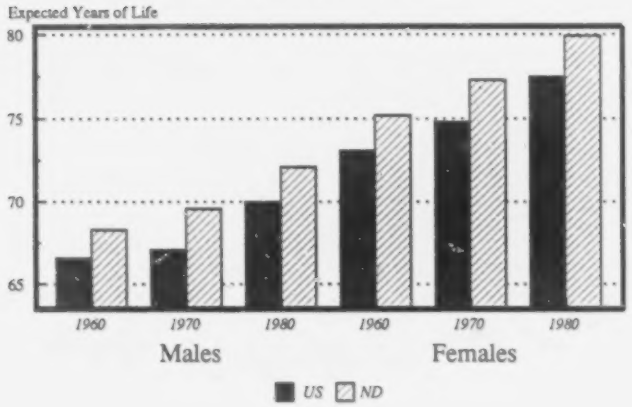
- Continued -

APPENDIX TABLE 8. PULL FACTORS BY POPULATION SIZE GROUP (CONTINUED)

City	Pull Factor				Percent Change		
	1980	1987	1988	1989	1980-87	1980-89	1987-89
POPULATION 200 TO 500 (Continued)							
GLENBURN	0.15	0.14	0.13	0.08	-5.95	-48.29	-45.02
GOLDEN VALLEY	*	*	*	*	*	*	*
GOODRICH	*	*	*	*	*	*	*
GRANDIN	*	*	*	*	*	*	*
GRANVILLE	*	*	*	*	*	*	*
GRENORA	*	*	*	*	*	*	*
HALLIDAY	0.34	0.25	0.18	0.11	-26.11	-66.24	-54.31
HANNAFORD	*	*	*	*	*	*	*
HARWOOD	*	*	*	*	*	*	*
HAZELTON	0.25	0.31	0.21	0.16	24.82	-37.59	-50.00
HOOPLE	*	*	*	*	*	*	*
HOPE	0.73	0.31	0.31	0.34	-57.73	-53.56	9.85
HORACE	*	*	*	*	*	*	*
HUNTER	1.06	0.97	0.79	1.33	-7.16	26.10	36.70
KENSAL	0.11	0.09	0.07	0.06	-20.67	-45.98	-31.91
LANSFORD	*	*	*	*	*	*	*
LEHR	*	*	*	*	*	*	*
LEONARD	*	*	*	*	*	*	*
LIGNITE	*	*	*	*	*	*	*
LITCHVILLE	*	*	*	*	*	*	*
MANVEL	*	*	*	*	*	*	*
MAPLETON	*	*	*	*	*	*	*
MARION	*	*	*	*	*	*	*
MAX	0.13	0.13	0.12	0.09	0.66	-31.48	-31.23
MINNEWAUKAN	*	*	*	*	*	*	*
MOORETON	*	*	*	*	*	*	*
MUNICH	*	*	*	*	*	*	*
NECHE	0.17	0.22	0.18	0.20	26.79	14.38	-4.79
NEW LEIPZIG	0.34	0.22	0.18	0.10	-34.55	-70.11	-54.33
NOONAN	*	*	*	*	*	*	*
OSNABROCK	*	*	*	*	*	*	*
PAGE	0.73	0.84	0.69	0.81	14.50	10.19	-3.77
PETERSBURG	*	*	*	*	*	*	*
PLAZA	*	*	*	*	*	*	*
PORTAL	*	*	*	*	*	*	*
POWERS LAKE	0.55	0.54	0.55	0.33	-0.95	-39.17	-38.59
REEDER	*	*	*	*	*	*	*
REGENT	0.56	0.48	0.47	0.32	-14.36	-44.09	-34.71
REYNOLDS	*	*	*	*	*	*	*
RHAME	*	*	*	*	*	*	*
RIVERSIDE	*	*	*	*	*	*	*
ROCKLAKE	*	*	*	*	*	*	*
RUTLAND	0.16	0.16	0.14	0.17	-3.29	1.95	5.41
SANBORN	*	*	*	*	*	*	*
SAWYER	*	*	*	*	*	*	*
SCRANTON	*	*	*	*	*	*	*
SELFRIDGE	*	*	*	*	*	*	*
SHERWOOD	*	*	*	*	*	*	*
SHEYENNE	0.80	0.46	0.42	0.41	-42.11	-48.51	-11.06
SOUTH HEART	*	*	*	*	*	*	*
ST. JOHN	*	*	*	*	*	*	*
STARKWEATHER	*	*	*	*	*	*	*
STREETER	0.25	0.15	0.14	0.09	-40.62	-62.40	-36.68
TAPPEN	*	*	*	*	*	*	*
TAYLOR	*	*	*	*	*	*	*
TOLNA	*	*	*	*	*	*	*
TOWER CITY	*	*	*	*	*	*	*
TUTTLE	*	*	*	*	*	*	*
UPHAM	*	*	*	*	*	*	*
WILDROSE	*	*	*	*	*	*	*
WILLOW	*	*	*	*	*	*	*
WIMBLEDON	1.16	1.16	0.81	0.80	-0.10	-31.02	-30.95
WING	0.12	0.11	0.10	0.14	-11.63	15.17	30.33
ZEELAND	*	*	*	*	*	*	*
AVERAGE	0.41	0.35	0.29	0.28	-14.30	-30.65	-19.07

North Dakota Life Tables
1960, 1970, and 1980

Life Expectancy
United States and North Dakota
1960, 1970 and 1980



A Census Data Center Report
Richard W. Rathge, Director

Data Center Report #13

North Dakota Life Tables 1960, 1970, and 1980

(abridged)

Rita R. Hamm and Syed Azam

A Census Data Center Report
Richard W. Rathge, Director

Department of Agricultural Economics
North Dakota State University
Fargo, North Dakota 58105

(701) 237-7980

September 1990

Acknowledgment

The 1960 and 1970 data and life tables were taken from the 1974 publication, North Dakota Abridged Life Tables by Richard L. Ludtke and Richard W. Blair, published by the North Dakota Department of Health.

The 1980 tables were generated by a program developed at the North Dakota State Census Data Center, Department of Agricultural Economics, North Dakota State University, Fargo.

For those interested in further information about life tables, please see Chapter 15 of The Methods and Materials of Demography by H.S. Shryoch, J.S. Siegal and Associates (condensed edition), New York, Academic Press, Inc., 1976.

Don Morrison, David Myers and others from the North Dakota Department of Health, Ronald Anderson from the North Dakota Agricultural Extension Service, Charlene Lucken from North Dakota State University College of Agriculture and Richard W. Rathge, Gary A. Goreham, and Charlotte Whittey from the North Dakota Census Data Center contributed to the quality of this report with their thoughtful reviews. We thank them for their efforts, but assume any remaining errors as our own.

Table of Contents

	Page
Introduction to Life Tables	1
Uses	1
Types of Life Tables	1
Components of Life Tables	2
North Dakota Life Expectancy, 1960-1980	4
Summary	7
Appendices	
A: North Dakota Abridged Life Tables -- 1980, 1970, and 1960	8
Female Population	9
Male Population	12
Total Population	15
B: Base Data -- 1980, 1970, and 1960	18

List of Tables

Table		*Page*
1	Expected Remaining Years of Life at Birth in North Dakota and the United States in 1960, 1970, and 1980	4
2	Ratio of Female-to-Male Life Expectancies in North Dakota in 1960, 1970, and 1980	5
3	Percent Change in Life Expectancy by Gender in North Dakota, 1960-1980	6
A-1	Life Table for North Dakota Females, 1980	9
A-2	Life Table for North Dakota Females, 1970	10
A-3	Life Table for North Dakota Females, 1960	11
A-4	Life Table for North Dakota Males, 1980	12
A-5	Life Table for North Dakota Males, 1970	13
A-6	Life Table for North Dakota Males, 1960	14
A-7	Life Table for the North Dakota Total Population, 1980	15
A-8	Life Table for the North Dakota Total Population, 1970	16
A-9	Life Table for the North Dakota Total Population, 1960	17
B-1	Base Data for the Construction of Life Tables for North Dakota, 1980	19
B-2	Base Data for the Construction of Life Tables for North Dakota, 1970	20
B-3	Base Data for the Construction of Life Tables for North Dakota, 1960	21

Introduction to Life Tables

Life tables are tables which measure mortality. However, they are used by various agencies and individuals for a variety of purposes. Because user needs differ, several types of life tables have been developed. This section provides a review of life-table uses and types, and it concludes with a description of the components of the life tables presented in this report.

Uses

Life tables show the expected years of life remaining at each age. The most familiar use of life tables are the actuarial tables used by life insurance companies. Actuarial tables are very detailed life tables, and they are the primary tool used by life insurance companies to determine insurance rates. In general, the older the person the higher the insurance rate, simply because older persons are expected--based on the actuarial table--to have fewer years of life remaining; thus, they are a higher risk to insurance companies. However, life tables have other uses as well.

Different forms of life tables and life tables combined with other socioeconomic information are used in studies of longevity, fertility, migration, and population change. Frequently, they are used in studies of the elderly in general, widowhood, orphanhood, and length of married life, disability-free life, worklife, and retirement. They are used to examine the effects of illness, disease, and medical treatment (or lack thereof) on populations. In short, having current, area-specific life tables available is important to researchers, practitioners, and industry alike.

Types of Life Tables

Life tables basically all measure mortality, but because they are used by a variety of specialists to serve a variety of needs, life tables are available in several forms.

period	vs.	generational
abridged	vs.	complete
standard	vs.	multiple decrement

The life tables presented in this report are period, abridged, standard life tables.

Period tables or current life tables differ from generational tables in that they are based on death statistics from a short period of time, such as one year or four years, etc. In the tables given here, the reference years are 1960, 1970, and 1980. Generational tables, on the other hand, are based on mortality rates experienced by a generation of the population. For example, all persons born in 1889 would be observed from their births until they *all* die. Obviously, generational tables require that data be collected over long periods of time, and constructing complete generational life tables for persons born in this century is impossible.

Life tables are also classified as either complete or abridged, based on whether single years of age on age intervals are used. A complete or unabridged life table contains data for every single year of age from birth to the last applicable age. An abridged life table, like those presented in this report, contains data by intervals of 5 or 10 years of age. Abridged life tables based on 5-10 year intervals are considered to be accurate for most purposes, and often

data from a complete life table are presented only for every fifth age anyway because of space considerations.

Finally, standard life tables reflect only mortality experiences. Multiple decrement tables, on the other hand, include factors in addition to mortality. For example, the cause of death or another socioeconomic factor such as years of education might be combined with the data on mortality. Whatever other factors are considered in multiple decrement tables, mortality data always are included. The tables presented in this report are standard life tables concerned only with the mortality experience in North Dakota and no other factor.

Components of the Life Table

Life tables are based on a hypothetical population and actual mortality rates. Because the tables reflect a stationary population, the total number of persons and their distribution by age do not vary over time. The annual number of births is 100,000, and the annual number of deaths is 100,000; thus, the population remains the same size. To this stationary population, age-specific death rates are applied and converted to probabilities of dying. Death statistics by age and gender from the North Dakota Department of Health's Vital Statistics Division were used to construct the life tables in this report. Of course, all rates had to be converted to the hypothetical base of 100,000.

The life tables in this report contain seven columns of information, the form provided in most published tables. The first column is the age interval of the stationary population. Column two shows the mortality rate, the basic rate from which all other columns in the table are derived. Figure 1 reproduces the first row of Appendix Table 1, "Life Table for North Dakota Females, 1980."

(Column 1)	(Column 2)	(Column 3)	(Column 4)	(Column 5)	(Column 6)	(Column 7)
		Number of Persons				
Age Interval	Proportion Dying	Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval	Person-Years Lived	Average Number of Years of Life
0-1	.009523	100,000	952	99,346	7,998,805	79.888

Figure 1
Reproduction of Row 1 of Appendix Table 1

- Column 1 (Figure 1) indicates the age intervals available in the life table. The first row in Appendix Table 1 represents the age interval from birth to 1 year.

- Column 2 shows the mortality rate for the age interval of females 0-1 to be .009523. This number was obtained by dividing the number of deaths occurring to female infants in the first year of life by the total number of female infants born. Typically a three-year average is used to avoid unusual single-year deviations in births or deaths.

- Column 3 is the number of females who reach the beginning of the age interval each year. Because this is the first age interval, we begin with a hypothetical population of 100,000, as shown in column 2.

- Column 4 is the number of females who die each year within a specific age interval. This number is obtained by multiplying the proportion dying within the age interval (column 2) by the number of alive at the start of the age interval (column 3). Thus, for the 100,000 female births, 952 females in the age interval 0-1 would die in one year.

- Column 5 is the number of females living in the age interval *at any one moment* during the year. Of the 100,000 female births at the beginning of the year, 99,346 are surviving in the population at any time during the year.

- Column 6 is the total number of person-years that would be lived after the beginning of the age interval by the cohort of 100,000 female births assumed. According to the information reproduced in Figure 1, the 100,000 hypothetical newborn female babies born in North Dakota in 1980 would live 7,998,805 person-years after their birth.

- Column 7 is the number of years to be lived, on average, or the life expectancy at the beginning of the age interval. On the average, the 100,000 female newborns at the beginning of the age interval 0-1 in 1980 in North Dakota could expect to live 79.888 years.

North Dakota Life Expectancy, 1960-1980[1]

This section describes changes in North Dakota life expectancy from 1960-1980. A comparison of North Dakota average life expectancy with the national experience is shown in Table 1. In brief, North Dakota males born in 1980 are expected to live, on average, 72.1 years. This is a gain of 3.8 years from 1960 statistics. In contrast, the national averages for males are 66.6 years and 70.0 years, respectively. The life expectancy for females is markedly higher. In N.D., women born in 1980 are expected to live 79.9 years, a gain of 4.7 years from 1960. National life expectancy for women has increased from 73.1 years in 1960 to 77.5 years in 1980. In fact, the disparity between the national life expectancy and that of the North Dakota population has widened since 1960. In 1960, the difference between national life expectancy for females and North Dakota females was 2.1 years, in 1970 it was 2.5 years, and in 1980 it was 2.4 years. North Dakota males were expected to live 1.7 years longer than the average for men in the nation in 1960, 2.5 additional years in 1970, and 2.1 years in 1980.

Although life expectancy is only one measure of general health, the fact that state-level life expectancy is higher than the national average is an indication of the overall health of the state's populace. Male life expectancy was nearly 7 years less than female life expectancy in 1960 and nearly 8 years less in 1980. In addition, with no exception and at every age interval, the life expectancy for females in North Dakota has been higher than that for males

Table 1

Expected Remaining Years of Life at Birth in North Dakota and the United States in 1960, 1970, and 1980

	North Dakota		United States	
Year	Males	Females	Males	Females
1960	68.3	75.2	66.6	73.1
1970	69.6	77.3	67.1	74.8
1980	72.1	79.9	70.0	77.5

Source: National Center for Health Statistics. Vital Statistics of the United States, Vol. II, Section-S, "Life Tables." Washington, D.C.: U.S. Department of Health, Education, and Welfare.

[1]Life expectancy is different than life span. Life span implies the maximum age that a human being could reach under optimal conditions. Life expectancy is the number of years to be lived, on average.

between 1960 and 1980 (Table 2). However, looking at the percent change in the ratio of female-to-male life expectancy, it is interesting to note that the differences were greater between 1960 and 1970 than between 1970 and 1980. In fact, between 1970 and 1980, only in the age intervals 65-85 did the female-to-male ratios continue to increase. In all age intervals, the amount of actual disparity decreased in the 1970 vs. 1980 period from the 1960 to 1970 levels. This decrease in female-male life expectancy discrepancy may be an indication that male life expectancies may soon be increasing faster than female life expectancies and that the gap between average male and female life expectancy may begin to narrow.

Table 2

Ratio of Female-to-Male Life Expectancies in North Dakota in 1960, 1970, and 1980

				Percent Change		
Age Interval*	1960	1970	1980	1960-70	1970-80	1960-80
0-1	1.1013	1.1107	1.1075	.85	-.29	.57
1-5	1.0951	1.1083	1.1042	1.21	-.37	.83
5-10	1.0999	1.1140	1.1087	1.28	-.46	.80
10-15	1.1057	1.1240	1.1169	1.66	-.63	1.01
15-20	1.1117	1.1331	1.1263	1.92	-.60	1.31
20-25	1.1155	1.1386	1.1325	2.07	-.54	1.70
25-30	1.1211	1.1471	1.1406	2.32	-.57	1.74
30-35	1.1227	1.1586	1.1498	3.20	-.76	2.41
35-40	1.1300	1.1758	1.1640	4.05	-1.00	3.01
40-45	1.1421	1.1914	1.1823	4.32	-.76	3.52
45-50	1.1571	1.2101	1.2046	4.58	-.45	4.11
50-55	1.1698	1.2364	1.2277	5.69	-.70	4.95
55-60	1.1874	1.2534	1.2495	5.56	-.31	5.23
60-65	1.2020	1.2709	1.2561	5.73	-1.16	4.50
65-70	1.2019	1.2789	1.2865	6.41	.60	7.04
70-75	1.1939	1.2877	1.3060	7.86	1.42	9.39
75-80	1.1907	1.2718	1.3060	6.81	2.69	9.68
80-85	1.1525	1.3019	1.3103	12.96	.64	13.69
85+	1.1502	1.3252	1.2707	15.21	-4.11	10.48

*Age intervals are the period of life between two exact ages, for example, between ages 1 and 5 or between 5 and 10.

Table 3 shows the percent increase in life expectancy by gender for 1960 through 1980. Of particular concern in the 1970s was the fact that male life expectancy, while increasing overall between 1960 and 1970, actually decreased for the 30-45 age intervals. However, the increase in life expectancy for those age intervals was robust between 1970 and 1980. Perhaps this provides a good example of the need for caution in interpreting the data in these tables and especially shows the benefit of examining trends over time rather than for a single year.

Table 3

Percent Change in Life Expectancy by Gender in North Dakota, 1960-1980

	1960-70		1970-80		1960-80	
Age Interval	Female	Male	Female	Male	Female	Male
0-1	2.73	1.87	3.38	3.68	6.21	5.61
1-5	1.88	.66	3.08	3.47	5.02	4.15
5-10	1.97	.67	3.11	3.60	5.13	4.29
10-15	2.07	.42	3.29	3.95	5.43	4.38
15-20	2.18	.25	3.58	4.20	5.84	4.47
20-25	2.35	.27	4.01	4.56	6.45	4.85
25-30	2.65	.19	4.32	4.91	6.70	5.25
30-35	3.01	-.19	4.61	5.42	7.76	5.22
35-40	3.60	-.43	4.80	5.86	8.57	5.40
40-45	4.11	-.20	5.34	6.16	9.67	5.94
45-50	4.69	.10	6.06	6.54	11.03	6.65
50-55	5.80	.10	6.62	7.10	12.51	7.20
55-60	6.50	.89	7.14	7.48	14.10	8.43
60-65	7.60	1.77	8.06	7.60	16.28	9.57
65-70	9.49	2.90	8.53	7.89	16.71	11.01
70-75	10.69	2.63	11.01	9.45	22.88	12.33
75-85	13.09	5.88	13.65	10.68	28.53	17.19
80-85	20.41	6.60	8.38	7.69	30.50	14.79
85+	31.31	13.97	-2.17	2.04	28.47	16.29

Summary

The tables in this report show the expected remaining years of life in North Dakota for the population as a whole and for males and females. For purposes of comparison, each of the tables are given for 1960, 1970, and 1980.

As presented on the preceding pages, life expectancy has been greater for females than for males. Also, the report shows that life expectancy has been higher in North Dakota than for the United States, although both the national and state averages have increased steadily.

It is beyond the expertise of the authors to speculate about the reasons for the increase in life expectancy or the continued higher life expectancies among females.

Appendix A

North Dakota Abridged Life Tables 1980, 1970, and 1960

Table A-1

Life Table for North Dakota Females, 1980

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.009523	100,000	952	99,346	7,988,805	79.888
1-5	0.001737	99,048	172	395,761	7,889,460	79.653
5-10	0.001044	98,876	103	494,120	7,493,699	75.789
10-15	0.001011	98,772	100	493,654	6,999,579	70.866
15-20	0.003055	98,673	301	492,656	6,505,925	65.934
20-25	0.003277	98,371	322	491,038	6,013,269	61.128
25-30	0.002509	98,049	246	489,618	5,522,231	56.321
30-35	0.002771	97,803	271	488,389	5,032,613	51.457
35-40	0.005122	97,532	500	486,512	4,544,224	46.592
40-45	0.007829	97,032	760	483,384	4,057,713	41.818
45-50	0.011268	96,273	1,085	478,841	3,574,329	37.127
50-55	0.017597	95,188	1,675	472,043	3,095,488	32.520
55-60	0.026587	93,513	2,486	461,757	2,623,445	28.054
60-65	0.039957	91,026	3,637	446,822	2,161,688	23.748
65-70	0.072085	87,389	6,240	422,388	1,714,867	19.623
70-75	0.105974	81,150	8,632	385,315	1,292,478	15.927
75-80	0.161935	72,517	11,749	334,914	907,163	12.510
80-85	0.263613	60,769	16,789	264,217	572,250	9.417
85+	1.000000	43,979	43,979	308,033	308,033	7.004

Table A-2

Life Table for North Dakota Females, 1970

Age Interval	Proportion Dying	Number of Persons: Alive at Start of Age Interval	Number of Persons: Dying During Age Interval	Number of Persons: Surviving to Next Age Interval	Person-Years Lived	Average Number of Years of Life
0-1	0.012805	100,000	1,281	98,837	7,727,398	77.274
1-5	0.003031	98,720	299	394,130	7,628,561	77.275
5-10	0.001429	98,420	141	491,750	7,234,431	73.505
10-15	0.000726	98,280	71	491,230	6,742,681	68.607
15-20	0.001908	98,208	187	490,637	6,251,452	63.655
20-25	0.003861	98,021	381	489,199	5,760,815	58.771
25-30	0.003873	97,643	378	487,305	5,271,617	53.989
30-35	0.005743	97,264	559	484,962	4,784,313	49.189
35-40	0.005715	96,706	553	482,196	4,299,352	44.458
40-45	0.008260	96,513	794	479,011	3,817,156	39.699
45-50	0.017453	95,359	1,664	472,881	3,338,145	35.006
50-55	0.021157	93,695	1,982	463,793	2,865,265	30.581
55-60	0.032605	91,712	2,990	451,672	2,401,472	26.185
60-65	0.054057	88,722	4,796	432,322	1,949,801	21.977
65-70	0.075833	83,926	6,364	404,738	1,517,479	18.081
70-75	0.124915	77,562	9,689	365,684	1,112,742	14.347
75-80	0.242163	67,873	16,436	300,107	747,058	11.007
80-85	0.359447	51,437	18,489	211,072	446,951	8.689
85+	1.000000	32,948	32,948	235,878	235,878	7.159

Table A-3

Life Table for North Dakota Females, 1960

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.021221	100,000	2,121	98,105	7,522,038	75.220
1-5	0.003215	97,879	315	390,729	7,423,933	75.848
5-10	0.001802	97,564	176	487,382	7,033,204	72.088
10-15	0.001262	97,388	123	486,642	6,545,823	67.214
15-20	0.002150	97,266	209	485,843	6,059,182	62.295
20-25	0.003155	97,056	306	484,535	5,573,340	57.424
25-30	0.003080	96,750	298	483,014	5,088,806	52.597
30-35	0.003576	96,452	345	481,444	4,605,793	47.752
35-40	0.005364	96,107	516	479,348	4,124,349	42.914
40-45	0.008638	95,592	826	476,082	3,645,002	38.131
45-50	0.014934	94,766	1,415	470,614	3,168,920	33.439
50-55	0.025388	93,351	2,370	461,230	2,698,306	28.905
55-60	0.036712	90,891	3,340	447,118	2,237,076	24.588
60-65	0.057910	87,641	5,075	426,446	1,789,959	20.424
65-70	0.094531	82,566	7,805	394,544	1,363,514	16.514
70-75	0.146816	74,761	10,976	348,170	968,970	12.961
75-80	0.258400	63,784	16,482	279,466	620,800	9.733
80-85	0.407492	47,303	19,275	188,544	341,354	7.216
85+	1.000000	28,027	28,027	152,810	152,810	5.452

Table A-4

Life Table for North Dakota Males, 1980

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.013803	100,000	1,380	99,142	7,213,423	72.134
1-5	0.003080	98,620	304	393,719	7,114,281	72.139
5-10	0.001395	98,316	137	491,237	6,720,562	68.357
10-15	0.001519	98,179	149	490,650	6,229,325	63.449
15-20	0.007718	98,030	757	488,383	5,738,675	58.540
20-25	0.007772	97,273	756	484,478	5,250,291	53.975
25-30	0.007943	96,517	767	480,640	4,765,814	49.378
30-35	0.006439	95,750	617	477,232	4,285,174	44.754
35-40	0.009120	95,134	868	473,639	3,807,942	40.027
40-45	0.013589	94,266	1,281	468,398	3,334,303	35.371
45-50	0.023214	92,985	2,159	459,998	2,865,906	30.821
50-55	0.038876	90,827	3,531	445,867	2,405,907	26.489
55-60	0.055598	87,296	4,853	425,204	1,960,040	22.453
60-65	0.092883	82,442	7,657	394,119	1,534,836	18.617
65-70	0.133102	74,785	9,954	350,124	1,140,706	15.253
70-75	0.198474	64,831	12,867	292,839	790,582	12.195
75-80	0.270414	51,964	14,052	225,285	497,742	9.579
80-85	0.414914	37,912	15,730	150,183	272,457	7.187
85+	1.000000	22,182	22,182	122,274	122,274	5.512

Table A-5

Life Table for North Dakota Males, 1970

Age Interval	Proportion Dying	Number of Persons: Alive at Start of Age Interval	Number of Persons: Dying During Age Interval	Number of Persons: Surviving to Next Age Interval	Person-Years Lived	Average Number of Years of Life
0-1	0.016226	100,000	1,623	98,536	6,957,473	69.575
1-5	0.003814	98,377	375	392,572	6,858,937	69.721
5-10	0.000916	98,002	90	489,787	6,466,366	65.982
10-15	0.002370	97,912	232	489,130	5,976,580	61.040
15-20	0.008177	97,680	799	486,539	5,487,451	56.178
20-25	0.009021	96,882	874	482,230	5,000,912	51.619
25-30	0.008652	96,008	831	477,956	4,518,682	47.066
30-35	0.008864	95,177	844	473,844	4,040,727	42.455
35-40	0.014265	94,333	1,346	468,504	3,566,844	37.811
40-45	0.019467	92,988	1,810	460,698	3,098,340	33.320
45-50	0.029761	91,178	2,714	449,645	2,637,642	28.929
50-55	0.049832	88,464	4,408	431,983	2,187,997	24.733
55-60	0.071320	84,056	5,995	406,189	1,765,015	20.891
60-65	0.111649	78,061	8,715	369,403	1,349,827	17.292
65-70	0.147889	69,345	10,225	322,065	980,424	14.138
70-75	0.226843	59,090	13,404	262,939	658,359	11.142
75-80	0.329510	45,686	15,054	190,986	395,420	8.655
80-85	0.467719	30,632	14,327	116,357	204,433	6.674
85+	1.000000	16,035	16,035	88,076	88,076	5.402

Table A-6

Life Table for North Dakota Males, 1960

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.027977	100,000	2,798	97,535	6,830,129	68.301
1-5	0.004104	97,202	399	387,812	6,732,595	69.264
5-10	0.003856	96,803	373	483,084	6,344,784	65.543
10-15	0.004271	96,430	412	481,207	5,861,701	60.787
15-20	0.008206	96,018	788	478,212	5,380,494	56.036
20-25	0.008911	95,230	849	474,136	4,902,282	51.478
25-30	0.013727	84,382	1,296	468,704	4,428,147	46.917
30-35	0.010874	93,086	1,012	462,850	3,959,444	42.535
35-40	0.011485	92,074	1,057	457,826	3,496,594	37.976
40-45	0.016419	91,016	1,494	451,685	3,038,768	33.387
45-50	0.029982	89,522	2,684	441,371	2,587,084	28.899
50-55	0.043280	86,838	3,758	425,385	2,145,713	24.709
55-60	0.066484	83,080	5,523	402,561	1,720,328	20.707
60-65	0.108573	77,556	8,421	367,875	1,317,768	16.991
65-70	0.159428	69,136	11,022	319,018	949,893	13.740
70-75	0.218830	58,114	12,717	259,818	630,875	10.856
75-80	0.353026	45,397	16,026	187,176	371,058	8.174
80-85	0.475269	29,370	13,959	110,835	183,882	6.261
85+	1.000000	15,412	15,412	73,047	73,047	4.740

Table A-7

Life Table for the North Dakota Total Population, 1980

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.011723	100,000	1,172	99,222	7,581,141	75.811
1-5	0.002430	98,828	240	394,711	7,481,919	75.707
5-10	0.001223	98,588	121	492,636	7,087,208	71.887
10-15	0.001273	98,467	125	492,108	6,594,572	66.972
15-20	0.005457	98,342	537	490,455	6,102,464	62.054
20-25	0.005604	97,805	548	487,652	5,612,009	57.380
25-30	0.005366	97,257	522	484,960	5,124,357	52.689
30-35	0.004697	96,735	454	482,574	4,639,397	47.960
35-40	0.007174	96,281	691	479,795	4,156,823	43.174
40-45	0.010712	95,590	1,024	475,584	3,677,028	38.467
45-50	0.017153	94,566	1,622	469,110	3,201,444	33.854
50-55	0.028312	92,944	2,631	458,577	2,732,334	29.398
55-60	0.041124	90,312	3,714	442,924	2,273,758	25.177
60-65	0.066239	86,598	5,736	419,583	1,830,834	21.142
65-70	0.101199	80,862	8,125	384,925	1,411,251	17.453
70-75	0.149692	72,679	10,879	337,204	1,026,326	14.121
75-80	0.210696	61,800	13,021	277,579	689,122	11.151
80-85	0.334602	48,779	16,321	204,163	411,543	8.437
85+	1.000000	32,457	32,457	207,380	207,380	6.389

Table A-8

Life Table for the North Dakota Total Population, 1970

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.014543	100,000	1,454	98,684	7,308,463	73.085
1-5	0.003434	98,546	338	393,337	7,209,780	73.162
5-10	0.001168	98,207	115	490,750	6,816,444	69.409
10-15	0.001564	98,093	153	490,160	6,325,695	64.487
15-20	0.005112	97,939	501	488,545	5,835,536	59.583
20-25	0.006550	97,438	638	485,620	5,346,992	54.876
25-30	0.006336	96,800	613	482,480	4,861,373	50.221
30-35	0.007281	96,187	700	479,254	4,378,893	45.525
35-40	0.009994	95,487	954	475,175	3,899,639	40.840
40-45	0.013923	94,532	1,316	469,633	3,424,465	36.225
45-50	0.023742	93,216	2,213	460,950	2,954,833	31.699
50-55	0.035708	91,003	3,250	447,387	2,493,884	27.404
55-60	0.052382	87,753	4,597	428,046	2,046,498	23.321
60-65	0.083623	83,157	6,954	399,219	1,618,452	19.463
65-70	0.111982	76,203	8,533	360,697	1,219,234	16.000
70-75	0.174481	67,669	11,831	310,291	858,538	12.687
75-80	0.283692	55,838	15,841	240,533	548,247	9.819
80-85	0.409178	39,997	16,366	158,558	307,714	7.693
85+	1.000000	23,631	23,631	149,156	149,156	6.312

Table A-9

Life Table for the North Dakota Total Population, 1960

Age Interval	Proportion Dying	Number of Persons			Person-Years Lived	Average Number of Years of Life
		Alive at Start of Age Interval	Dying During Age Interval	Surviving to Next Age Interval		
0-1	0.024669	100,000	2,467	97,812	7,141,873	71.419
1-5	0.003667	97,533	358	389,238	7,044,062	72.222
5-10	0.002850	97,176	277	485,185	6,654,824	68.843
10-15	0.002795	96,899	271	483,863	6,169,639	63.671
15-20	0.005215	96,628	504	481,943	5,685,777	58.842
20-25	0.006039	96,124	581	479,231	5,203,834	54.137
25-30	0.008457	95,543	808	475,721	4,724,603	49.450
30-35	0.007334	94,735	695	471,938	4,248,883	44.850
35-40	0.008508	94,041	800	468,303	3,776,945	40.163
40-45	0.012627	93,241	1,177	463,529	3,308,642	35.485
45-50	0.022756	92,063	2,095	455,485	2,845,114	30.904
50-55	0.034789	89,968	3,130	442,527	2,389,630	26.561
55-60	0.052381	86,838	4,549	423,617	1,947,103	22.422
60-65	0.084555	82,290	6,958	395,124	1,523,486	18.514
65-70	0.128603	75,332	9,688	353,511	1,128,363	14.979
70-75	0.184431	65,644	12,107	299,373	774,852	11.804
75-80	0.308374	53,537	16,509	227,310	475,479	8.881
80-85	0.443477	37,028	16,421	143,471	248,169	6.702
85+	1.000000	20,607	20,607	104,698	104,698	5.081

Appendix B

Base Data
1980, 1970, and 1960

Table B-1

Base Data for the Construction of Life Tables for North Dakota, 1980

Age Group	Population		Births* by Age of Mother	Deaths*	
	Male	Female		Male	Female
< 1	6,177	5,842	--	86	56
1-4	22,033	20,700	--	17	9
5-9	25,079	23,937	--	7	5
10-14	26,328	24,715	10	8	5
15-19	32,920	31,057	1,303	51	19
20-24	35,889	33,504	4,508	56	22
25-29	30,691	27,779	4,208	49	14
30-34	23,969	21,718	1,617	31	12
35-39	17,568	16,680	374	32	17
40-44	14,711	14,687	72	40	23
45-49	14,065	14,566	3	66	33
50-54	15,279	15,218	--	121	54
55-59	14,543	14,675	--	166	79
60-64	13,691	14,251	--	266	116
65-69	12,315	13,615	--	350	201
70-74	9,715	11,502	--	426	257
75-79	6,635	8,666	--	412	302
80-84	3,924	5,933	--	411	377
85 +	2,894	5,246	--	525	749
	328,426	324,291	12,095	3,120	2,350

*Three year average based on the years 1979, 1980, and 1981.

Source: Division of Health Statistics, North Dakota State Department of Health.

Table B-2

Base Data for the Construction of Life Tables for North Dakota, 1970

Age Group	Population		Births by Age of Mother	Deaths	
	Male	Female		Male	Female
< 1	5,405	5,249	--	89	68
1-4	20,924	19,760	--	20	15
5-9	32,744	31,476	--	6	9
10-14	35,855	34,479	4	17	5
15-19	33,050	31,719	1,431	54	12
20-24	25,388	23,379	4,363	46	18
25-29	17,823	16,780	2,928	31	13
30-34	15,202	15,647	1,378	27	18
35-39	15,667	15,704	665	45	18
40-44	16,543	16,284	220	65	27
45-49	16,240	15,628	15	98	55
50-54	16,169	15,910	--	165	68
55-59	15,652	15,271	--	231	101
60-64	13,883	13,562	--	327	150
65-69	10,706	11,047	--	340	173
70-74	8,274	9,137	--	421	241
75-79	6,001	7,019	--	473	383
80-84	3,744	4,772	--	461	418
85 +	2,339	3,329	--	433	465
	311,609	306,152	11,004	3,349	2,257

Source: Division of Health Statistics, North Dakota State Department of Health.

Table B-3

Base Data for the Construction of Life Tables for North Dakota, 1960

Age Group	Population		Births by Age of Mother	Deaths	
	Male	Female		Male	Female
< 1	8,367	8,048	--	240	174
1-4	32,087	31,041	--	33	25
5-9	37,537	36,034	--	29	13
10-14	32,865	31,706	4	28	8
15-19	26,241	25,689	1,728	43	11
20-24	19,064	19,033	5,848	34	12
25-29	18,095	17,837	4,442	50	11
30-34	19,205	18,157	2,691	42	13
35-39	18,619	17,674	1,514	43	19
40-44	18,740	17,875	431	62	31
45-49	18,587	17,322	32	113	52
50-54	16,896	15,425	--	149	79
55-59	14,550	13,304	--	199	99
60-64	12,389	11,468	--	283	136
65-69	10,742	10,084	--	371	199
70-74	8,708	8,310	--	426	261
75-79	5,846	5,653	--	498	330
80-84	3,049	2,866	--	384	293
85 +	1,621	1,712	--	342	314
	323,208	309,238	16,690	3,369	2,080

Source: Division of Health Statistics, North Dakota State Department of Health.

People & Housing

The Effects of Demographic Factors on Residential Housing Requirements in North Dakota

A Census Data Center Report

Richard W. Rathge, Director
North Dakota State University
Department of Agricultural Economics

Census Data Center Report #14

PEOPLE AND HOUSING

The Effects of Demographic Factors on Residential Housing Requirements in North Dakota

by

Rita R. Hamm

A Census Data Center Report
Richard W. Rathge, Director
North Dakota State University
Department of Agricultural Economics

September 1990

Acknowledgements

I would like to thank Richard Rathge, Gary Goreham, and Charlotte Whittey of the Census Data Center, Larry Leistritz of the Department of Agricultural Economics, and Charlene Lucken of the College of Agriculture at North Dakota State University for reviewing drafts of this report. I would like to acknowledge Marsha Lembke, Executive Officer of the North Dakota Association of Builders, Lori Kunick of the North Dakota Housing Finance Agency, and the Governor's Task Force on Housing for their encouragement and suggestions. Mary Altepeter from the Department of Agricultural Economics is responsible for the final word processing and overall good appearance of this report. This manuscript is far better in so many ways that it would have been without the help and insight of these individuals. All remaining limitations and errors are my own.

Finally, I would like to acknowledge previous work done in this area under the direction of Steve H. Murdock, Head, Department of Rural Sociology, Texas A&M University, funded by the Texas Real Estate Research Center.

Table of Contents

Page

List of Tables ii

List of Figures iii

Summary of Demographic Factors Affecting Housing Requirements iv

Population 1

- Size 1
- Source of Growth 4
- Structure 5

The Effects of Demographic Factors on the Future Housing Needs in North Dakota 16

References 20

Appendices

- A. Population Projections for North Dakota A-1
- B. Data Sources for Housing Studies B-1

List of Tables

Table		Page
1	Population Change in North Dakota and the United States, 1910-1980	2
2	Annual Estimates of the Resident Population of North Dakota and the United States, July 1, 1981 through July 1, 1989	2
3	Projected Population of North Dakota, 1990-2000	2
4	Components of Population Change in North Dakota and Cass, Cavalier, Mercer and Pierce Counties, 1960-1988	6
5	Household Formation by Age of Householder for All Households, Family and Nonfamily Households in the United States and North Dakota in 1980	7
6	Projected Number of Households by Age of Householder for All Households, Family and Nonfamily Households in North Dakota, for the Year 2000	8
7	Percentage of Owner and Renter Households by Age of Householder for All Households and Family and Nonfamily Households in the United States in 1988	10
8	Median Age of the United States and North Dakota Population, 1900-1988	10
9	Population by Age Group in the United States and North Dakota, 1970, 1980, and 1989	11
10	Population by Age Group, 1980, and Projected Population by Age Group, 2000, in North Dakota	12
11	Average Household Size in the United States and North Dakota, 1940-1989	15
12	Marital Status of the North Dakota Population, 1960-1980	16
13	Socioeconomic Characteristics of Major Racial/Ethnic Groups in North Dakota, 1980	18

List of Figures

Table		Page
1	Shifts in Home Ownership	9
2	Size of Households in the United States	13
3	Household and Family Units by Type in the United States, 1940 to 1980	14
4	Distribution of Household Net Worth by Race, 1984	17

Summary of Demographic Factors Affecting Housing Requirements

This report presents an overview of the population of North Dakota in terms of size, source of change, and household/family structure. The effect of these demographic factors on housing demand is then demonstrated. The major highlights of the report are presented below:

- Larger populations require more housing, but not all populations of the same size require the same amount of housing.
- Growth primarily by natural increase is likely to have less impact on residential housing markets than growth due to inmigration.
- Age is a major determinant of housing demand and type of housing.
- Marital status and size of family affect the size and type of housing unit.
- Income status affects the demand for housing types in various price ranges.
- Changing marital status creates variation in household types and numbers.
- The racial and ethnic composition of the population affects the level and type of housing demands.

PEOPLE AND HOUSING

Between 1980 and 1989 the population of North Dakota is estimated to have increased slightly over 1 percent. At the same time the Census Bureau estimates the number of households increased by nearly 9 percent! This report explores some of the possible explanations for the discrepancy between the change in population and the increase in the number of households.

Population size is a major determinant of residential housing needs. However, other characteristics of the population, whether it is young or old, comprised of families or young single adults, and so on--are also important considerations.

Of course, demographic factors are only some of the influences on the housing market. For example, the Chicago Title Company has done a national survey of homebuyers since 1976. The results of their first survey indicated that the median price of homes sold during 1976 was $43,340. In 1989, the median sale price was $129,800. When the 1976 figure is adjusted for inflation, the 1989 median-priced home cost 37 percent more than the 1976 home. At the same time, the median family income decreased by 25 percent (adjusting for inflation) and the average mortgage payment increased by 48 percent. Between 1976 and 1989, the mortgage payment as a percent of household income increased from 24 percent to 32 percent. Thus, economic trends, changes in family income, interest rates, availability of capital for development, the existing housing stock, and numerous other factors may be as important as the "demographics". However, demographic factors are deemed important enough to warrant this report.

POPULATION

The focus of this section of the report covers the size of the past, present and projected future population within the State of North Dakota, but it is also about other characteristics of the population--its source and structure--which influence the demand for housing.

Size

In the past, the population of the United States grew steadily while the State of North Dakota experienced both population growth and decline (Table 1).

Predicting population change is difficult. First of all, demographers make a distinction between population estimates and projections. "Estimates" refer to a past time period--such as 1985--when no census was taken, but for which there were indicators of population change that could be verified. For example, records of births and deaths and number of students in school are some of the common indicators used in making population estimates. In short, estimates--while not reputed to be as accurate as a census--have as their base the most recent census to which factors such as births are added or from which factors such as deaths are subtracted. Table 2 shows U.S. Census Bureau estimates of the population of North Dakota and the United States since 1980.

Table 1

Population Change in North Dakota and the United States, 1910-1980

Year	North Dakota		United States	
	Population	Change*	Population	Change*
	(1,000s)	(%)	(1,000s)	(%)
1910	577	--	92,407	--
1920	647	12.1	106,022	14.7
1930	681	5.3	123,203	16.2
1940	642	-5.7	132,165	7.3
1950	620	-3.4	151,326	22.1
1960	632	1.9	179,323	18.5
1970	618	-2.2	203,212	13.3
1980	653	5.7	226,546	11.5

* Percent change is from the preceding date.

Source: U.S. Bureau of the Census

Table 2

Annual Estimates of the Resident Population of North Dakota and the United States, July 1, 1981 through July 1, 1989

Year	North Dakota		United States	
	Population	Change*	Population	Change*
	(1,000s)	(%)	(1,000s)	(%)
1981	661	1.2	229,637	1.4
1982	672	1.7	231,996	1.0
1983	681	1.3	234,284	1.0
1984	687	.9	236,477	1.0
1985	685	-.3	238,736	1.0
1986	679	-.9	241,107	1.0
1987	672	-.1	243,427	1.0
1988	667	-.7	245,785	1.0
1989	660	-1.1	248,239	1.0

* Percent change is from the preceding date. The 1980-81 percent change is from April 1, 1980 to July 1, 1981; all others are for a 12-month period.

Source: U.S. Bureau of the Census

In Table 2, we see that the Census Bureau estimated a continued steady growth of about 1.0 percent for the United States for the decade. For North Dakota, the Bureau estimates an annual growth of just over 1.3 percent for the 1980-1984 period but a decline of about a half percent per year from 1984-1989. Taken as a whole, the 1980-1989 period is one of growth for both the Nation and the State, albeit a very slow growth period for the State. Early census review counts from the 1990 census suggest that the estimates for the State may have underestimated the annual loss. If fact, the local review counts indicate the 1990 population of North Dakota may be as low as 640,000. Previous decades have shown similar scenarios (Table 1).

What about the future? While estimates are based on factors for which data are available for the year of interest, projections are always for future time periods. Therefore, projections cannot be verified by checking data, so more uncertainty surrounds projections than estimates.

Numerous methods are used to develop population projections. Generally, age-specific fertility rates, sets of age- and gender-specific mortality rates and migration rates are applied to age- and gender-specific cohorts. The starting base for most projections is usually the most recent decennial census (although the longer the time that has elapsed since the last census, the greater the chance for projection error). Although much more is involved in producing projections, this is the essence of what is done.

Table 3 provides population projections for the State to the year 2000. The projections reported in this table were produced by the North Dakota Demographic Projection Model. Because of the uncertainty involved in making projections, two scenarios are given. The high-growth scenario is based on actual 1970 to 1980 age-specific migration rates which were adjusted to reflect North Dakota's overall net outmigration pattern for the time period between 1980 and 1987. This pattern of outmigration is assumed to continue until the year 2000. The low-growth scenario was also based on 1970-1980 migration rates;

Table 3

Projected Population of North Dakota, 1990-2000

Low Series			High Series		
1990	1995	2000	1990	1995	2000
640,835	630,908	618,396	653,341	649,690	643,428

Source: North Dakota Demographic Projection Model

but this time the totals were modified to reflect 1987 to 1988 net outmigration rates. Again, this pattern was assumed to continue to the year 2000. Because the outmigration rate was higher in 1987-1988 than for the 1980-1987 period, the low-growth series results show a smaller statewide population. All other factors were held constant between the two scenarios.

The low series indicates a population decline between 1990 and 2000 of 3.5 percent, similar to the decline experienced in the State between 1940-1950. The high-growth scenario also shows a population decline, but the drop in population between 1990 and 2000 under this scenario is only 1.5 percent.

In spite of the population declines shown in the projections, the rate of decline is lower, even in the low-growth series, than during some previous decades (e.g., 1930-1940, 1940-1950). Thus, periods of population decline are not unprecedented in North Dakota, nor are current trends more extreme than during previous periods.

Of course, the estimates and projections given in this report are only as accurate as the assumptions on which they are based. If past trends in births, deaths and migration do not reflect future patterns, these projections will not reflect the State's future population.

In 1980, North Dakota had 228,565 households. *If housing requirements depend only on the number of people--that is, if the number of households-to-population remains constant--then in the year 2000, the number of households will be 216,547 (based on the low-growth scenario) or 225,312 (based on the high-growth scenario). Both scenarios yield projections of households in the year 2000 that are lower than the 1980 number of households.* These projections are based on the total projected population alone.

Source of Growth

Populations change as a result of natural increase (births exceeding deaths) or natural decrease (deaths exceeding births) and also as a result of migration. Growth through natural increase may have a long-term effect on housing markets as couples having children seek larger homes and those born eventually reach adulthood and establish households. In general, however, an area growing primarily by natural increase is likely to have slow residential housing market growth because the effect on housing is indirect and long-term.

Migration, by contrast, usually adds young adults who are either in the key family formation ages (20 to 29 years of age) or in the major child-rearing ages (20 to 45 years) and have immediate housing needs. As a result, growth from net inmigration is a stronger impetus to growth in the residential housing market than from natural increase because those population groups increase which have immediate housing needs.

Equally important to the housing market in North Dakota is the fact that inmigrants from one area are outmigrants from another. Outmigrants typically are young adults. When an area begins to lose

population through outmigration, it loses those same young adults who most directly affect residential housing markets. In fact, the outmigration of young adults may cause a decline in housing demand which exceeds the rate of decline in population. On the other hand, an area gaining inmigrants may realize an increase in housing demand greater than the rate of population increase.

Table 4 provides an overview of the components of population change in the State from 1960 through 1988. Historically, population growth in North Dakota has been the result of natural increase. Although the amount of migration has fluctuated from decade to decade, the end result has remained negative, meaning more people have moved from-than-to North Dakota in the recent past.

However, the migration pattern within the State varies. Some areas reflect the pattern of the State, while others show less outmigration. Table 4 provides examples of the patterns in the State and in four counties: Cass, Cavalier, Mercer, and Pierce. These counties were chosen to demonstrate the effects of the source of population change on total population.

Looking at the source of growth as it may apply to the housing needs of the State, we see a pattern of net outmigration and growth only through natural increase. *Because of this pattern of outmigration, the housing market would be assumed to grow very slowly.* However, as shown in Table 4, the source of population change varies greatly within the State, and likewise the effects from the change will vary the need for housing from area to area.

Structure

Age

Age affects the rates of household formation, marriage, childbearing and other events that usually occur during certain periods of life. It is one of the most powerful determinants of human behavior, including the need and demand for housing.

Age is a major determinant of housing demand because of the strong relationship between the rate at which households are formed, the type of household formed, and the type of housing that people tend to occupy at different ages. For example, the proportion of householders generally increases with age. The relative rate at which family-versus-nonfamily household types are formed is most similar for the youngest and oldest age groups; the greatest differences are found among the middle-age cohorts.

Table 5 shows types of household formations by age for the United States and North Dakota for 1980. Although household formation rates are roughly equivalent in the older age groups, households seem to have been formed earlier in North Dakota than in the Nation as a whole. In North Dakota, the total number of households in 1980 was 227,644 and the total population was 652,717.

Table 4

Components of Population Change in North Dakota and Cass, Cavalier, Mercer, and Pierce Counties, 1960-1988

Area	1960-1970	1970-1980	1980-1988
North Dakota			
Population			
at beginning of time period	632,446	617,792	652,717
at end of time period	617,792	652,717	660,000
Births	136,557	107,256	104,205
Deaths	55,202	55,456	49,587
Net migration	-96,009	-16,875	-47,335
Cass County			
Population			
at beginning of time period	66,947	73,653	88,247
at end of time period	73,653	88,247	100,200
Births	13,213	12,891	13,867
Deaths	5,454	5,836	5,470
Net migration	-1,053	7,539	3,556
Cavalier County			
Population			
at beginning of time period	10,064	8,213	7,636
at end of time period	8,213	7,636	6,400
Births	1,825	1,594	893
Deaths	917	899	753
Net migration	-2,759	-1,272	-1,376
Mercer County			
Population			
at beginning of time period	6,805	6,175	9,404
at end of time period	6,175	9,404	13,500
Births	1,219	1,057	1,969
Deaths	456	574	671
Net migration	-1,393	2,749	2,798
Pierce County			
Population			
at beginning of time period	4,422	6,323	6,166
at end of time period	6,323	6,166	5,400
Births	1,480	968	644
Deaths	595	612	543
Net migration	1,016	-513	-867

Source: U.S. Census Bureau, "Decennial Census," 1960, 1970, 1980; U.S. Census Bureau, population estimate for 1989; and North Dakota State Department of Health and Consolidated Laboratories, **North Dakota Vital Statistics Report.**

Table 5

Household Formation by Age of Householder for All Households, Family and Nonfamily Households in the United States and North Dakota in 1980

(by percent)

	United States			North Dakota		
Age Group	Total	Family	Nonfamily	Total	Family	Nonfamily
15-19	2.9	1.4	1.5	4.0	1.3	2.6
20-24	28.2	16.5	11.7	33.9	18.7	15.2
25-29	47.0	33.5	13.5	50.5	37.6	12.9
30-34	52.9	42.8	10.1	53.4	46.0	7.4
35-39	54.2	46.8	7.4	52.8	48.1	4.7
40-44	54.8	48.1	6.7	52.5	47.9	4.6
45-54	55.2	46.8	8.4	52.9	46.7	6.2
55-64	58.4	44.5	13.9	57.0	44.8	12.2
65/+	63.1	34.5	28.6	63.7	34.6	29.1

Source: U.S. Census Bureau, **1980 Census of Population**. Washington, DC: U.S. Government Printing Office.

Table 6 gives the 1980-based rates of household formation applied to the low and high series projections from the North Dakota Demographic Projection Model for the year 2000 (Table 3 and Appendix A). *Based on the 1980 rates of household formation by age, the number of potential households is over 12,000 more households than the 1980 figure with populations which are lower by over 9,000.* Although the differences between the 1980 and the projected values can be attributed, in large part, to the differences among the age cohorts, the 1980 rates were applied to the total population in each of the age cohorts; thus, no allowance was made for institutionalized persons--persons not living in households. This means that the range calculated here could be higher than the actual outcome will be and closer to the 1980 figure of 227,644 households.

Overall, in 1980, family households made up 73 percent of all households. *By applying the rates of household formation by age from 1980, in the year 2000, family households will be between 75 and 77 percent of all households.* The greater percent of family households would occur under the low growth scenario. The low growth series projects more young adults to outmigrate from the State, and it is the young adults who are least likely to live in family households.

Owner and renter status also varies by age for all types of households. Generally, home ownership increases until ages 40 to 44 and then remains relatively stable at about 67-75 percent. On the other hand, rentership is highest at ages 15-24 and lowest at ages 65

Table 6

Projected Number of Households by Age of Householder for All Households, Family and Nonfamily Households in North Dakota, for the Year 2000

(for High- and Low-Series Projections)

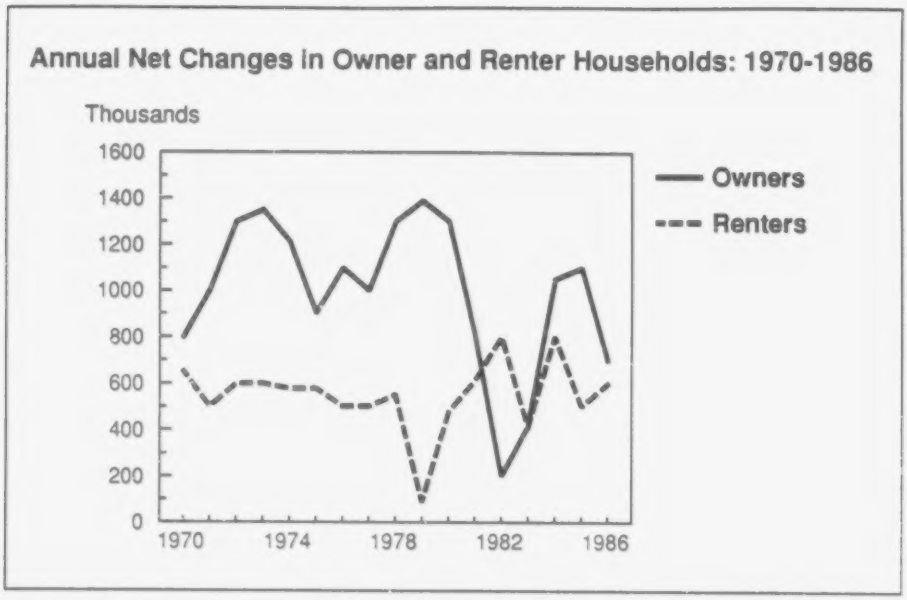
Age Group	High-Series			Low-Series		
	Total	Family	Nonfamily	Total	Family	Nonfamily
15-19	2,046	665	1,381	2,025	658	1,367
20-24	22,685	12,514	10,171	17,160	12,286	4,874
25-29	26,706	19,884	6,822	25,884	19,279	6,605
30-34	25,524	21,987	3,537	24,087	20,749	3,338
35-39	22,661	20,644	2,017	21,191	19,305	1,886
40-44	24,497	22,350	2,147	23,154	21,125	2,029
45-54	44,337	39,141	5,196	42,607	37,614	4,993
55-64	30,114	23,669	6,445	28,893	22,709	6,184
65/+	57,142	31,038	26,104	54,644	29,681	24,963

plus. Table 7 displays owner and renter status by age for the Nation in 1988.

If the pattern of home ownership for the Nation in 1980-1985 (Table 7) is reflected in the North Dakota population, then the increase in family households shown in Table 6 should indicate an increase in homeowners in the State's future.

However, the trends in home ownership are worth noting. Figure 1 (top) shows the net increase in home ownership dropped dramatically during the 1980s. At the same time, rentership increased. The figure also shows (bottom) that the decline in ownership is among those under 50. In every age category under 50, fewer householders owned their home in 1986 than did in 1981. In sum, changes in the age structure of a population affect both the rate of market growth and the type of residential housing required.

One indicator of age is the median age of the population (the median age divides the population into two equal-size groups, one of which is younger and the other of which is older than the median). The median age of the United States and North Dakota is increasing (Table 8). Although both are aging, the State is aging at a faster rate than is the Nation.



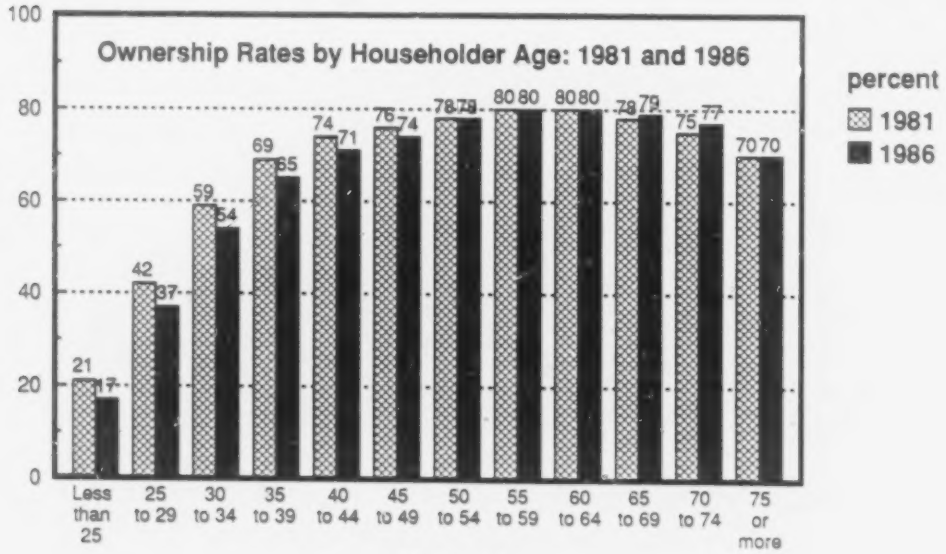


Figure 1

Shifts in Home Ownership

Source: U.S. Bureau of Census. (1989). Housing in America 1985/86, **Current Housing Report**, Series H-121, No. 19.

Table 7

Percentage of Owner and Renter Households by Age of Householder for All Households and Family and Nonfamily Households in the United States in 1988*

Age Group	Total		Family		Nonfamily	
	Owners	Renters	Owners	Renters	Owners	Renters
15-19	(13.0) 7.3	92.7	(11.6) 6.8	93.2	(14.4) 7.4	92.6
20-24	(16.6) 16.3	83.7	(22.6) 21.3	78.7	(10.6) 9.6	90.4
25-29	(32.6) 36.2	63.8	(45.3) 43.0	57.0	(19.9) 21.5	78.5
30-34	(45.8) 52.6	47.4	(61.5) 59.6	40.4	(30.0) 29.6	70.4
35-39	(54.9) 63.2	36.8	(71.6) 69.4	30.6	(38.1) 37.1	62.9
40-44	(75.2) 71.4	28.6	(75.3) 77.0	23.0	(45.1) 43.1	56.9
45-54	(65.0) 76.0	24.0	(82.2) 81.9	18.1	(42.7) 50.0	50.0
55-64	(73.0) 79.6	20.4	(86.3) 86.4	13.6	(59.6) 58.6	41.4
65/+	(74.4) 75.0	25.0	(85.8) 94.3	5.7	(62.3) 60.9	39.1
Total	(86,789) 91,066		(62,706) 65,133		(24,083) 25,933	

*Comparisons for owners in 1985 are in parentheses.

Source: U.S. Bureau of the Census, "Household and Family Characteristics," **Population Characteristics: March 1988**, Table 24, P-20 # 437 in Current Population Report series. Washington, DC: U.S. Government Printing Office (May 1989).

Table 8

Median Age of the United States and North Dakota Population, 1900-1988

Year	United States	North Dakota
1900	22.9	20.7
1970	28.1	26.4
1980	30.0	28.1
1988	32.3	31.3
% Change		
1970-80	6.7	6.4
1980-88	7.7	11.4
1970-88	14.9	18.6

Table 9 shows the change in population by age group in the United States and North Dakota between 1970 and 1989. In the 1980-1989 period, the only two age groups to show positive growth are the 25-44 year old and 65 years of age and older groups. The most significant decline appears to be among school-aged children (ages 5-17) who have declined by 47,000 between 1970 and 1989.

Table 10 shows the projected population by age and the percent change in age groups from 1980 to the year 2000 for the two scenarios produced by the North Dakota Demographic Projection Model. In 1980, the household formation age group (15-65/+) comprised 76.3 percent of the population. By the year 2000, under both of the projection scenarios, this age group will comprise over 83 percent of the total population. *On the basis of the data in Tables 9 and 10, the number of households should increase even though the number of persons declines. Applying the information from Table 7 which shows that rentership is highest in the younger age groups (15-24), the projected increase in the older age groups indicates that home ownership will also increase in the future, and conversely rentership will decrease.*

Table 9

Population by Age Group in the United States and North Dakota, 1970, 1980, and 1989

Age Group	1970	1980	1989	1970-80	1980-89
	(1,000s)				
United States					
Less than 5	17,154	16,348	18,752	-4.7	14.3
5 - 17	52,490	47,407	45,330	-9.6	-4.4
18 - 24	23,697	30,022	26,346	26.6	-12.2
25 - 44	47,995	62,717	80,337	30.6	28.1
45 - 64	41,810	44,503	46,490	6.4	4.5
65/+	20,066	25,549	30,984	27.3	21.3
Total	203,212	226,546	248,239	11.4	9.6
North Dakota					
Less than 5	51	55	50	7.8	-9.1
5 - 17	176	136	129	-22.7	-5.2
18 - 24	73	97	70	32.9	-27.8
25 - 44	130	168	212	29.2	26.2
45 - 64	122	116	108	-4.9	-6.9
65/+	66	80	92	21.2	15.0
Total	618	653	660	5.7	1.1

Source: Decennial Census, 1970 and 1980; U.S. Bureau of the Census, "State Population and Household Estimates," P-25 #1058 **Current Population Reports**. Washington, DC: U.S. Government Printing Office (July 1989).

Table 10

Population by Age Group, 1980 and Projected Population by Age Group, 2000 in North Dakota

Age Group	1980		2000			
			High Series		Low Series	
	Number	Percent	Number	Percent	Number	Percent
15-19	64,067	9.8	51,143	8.0	50,620	8.2
20-24	69,269	10.6	66,917	10.4	65,701	10.6
25-29	58,802	9.0	52,883	8.2	51,255	8.3
30-34	45,465	7.0	47,798	7.4	45,107	7.3
35-39	34,276	5.3	42,918	6.7	40,134	6.5
40-44	29,372	4.5	46,660	7.3	44,103	7.1
45-54	59,374	9.1	83,813	13.0	80,543	13.0
55-64	56,882	8.7	52,832	8.2	50,690	8.2
65/+	80,430	12.3	89,705	13.9	85,783	13.9
	497,937	76.3	534,669	83.1	513,936	83.1
Total Population	652,717	100.0	643,428	100.0	618,396	100.0

These patterns are shown at the state level. As was apparent in Table 4, county age patterns are likely to differ from that of the State as a whole. Thus, any analysis of local housing market potential should be done using data from the local area whenever possible.

Household, Family and Marital Characteristics

The rate of household formation, the number of young adults who marry and have children, the total number of children per family, and marriage and divorce rates all affect the demand for housing. Married couples, especially couples with children, more likely will live in owner-occupied, single-family homes. An increase in the number of singles (from an increase in young adults, delayed marriage or divorce) is likely to create higher demand for multiple-unit rental housing. Also, the average size of the family will affect the size and type of housing unit desired and required. At the same time, however, a large family size among those with modest incomes can increase the need for lower cost, family-oriented housing.

In the United States, changes in household and family composition and in marital patterns have been most dramatic. Figure 2 illustrates the shift in household size from 1790 until 1980 in the United States. Roughly half of our housing units were occupied by one or two people in 1980; the proportion was about one in ten in 1790. Conversely, nearly half of the housing units in 1790 had at least six people living in them compared to less than 10 percent today.

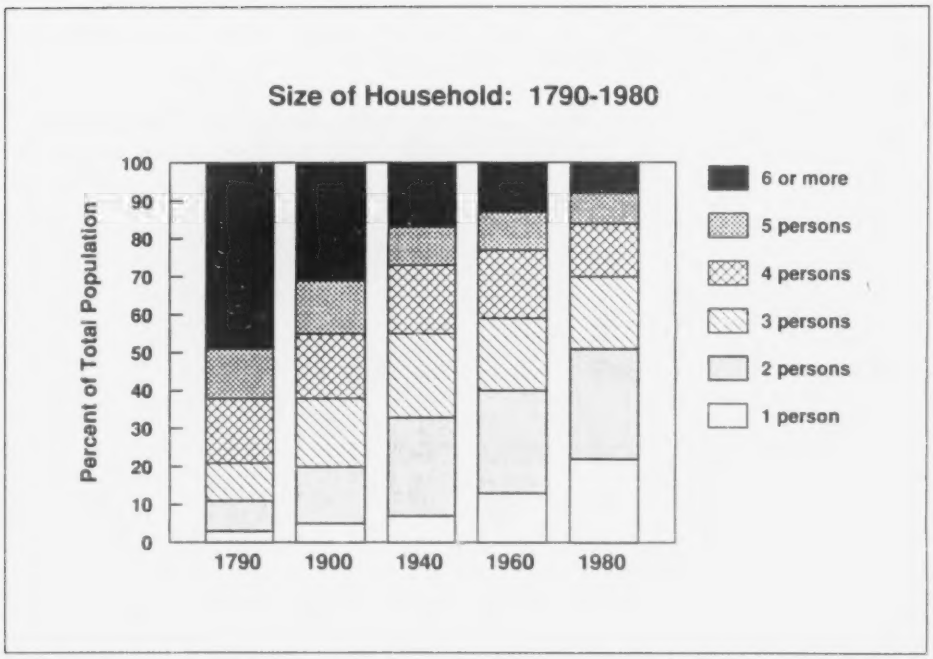


Figure 2

Size of Households in the United States: 1790-1980

Source: U.S. Bureau of the Census. **Historical Statistics of the United States, Colonial Times to 1970**, Bicentennial Edition, Part 2; and **General Social and Economic Characteristics**, Chapter C, Characteristics of the Population.

Figure 3 portrays the dramatic shifts in the composition of the American family over the past four decades. The major change is in the decline in family households, specifically married couples, and the increase in nonfamily households. Most of this shift reflects the escalation in single-person households (Figure 2), which have tripled since 1940. In 1980 single-person households account for nearly one-in-four households.

Overall, in recent years, the average household size has declined, the number of one- and two-person households has increased dramatically, the number of nonfamily households (Table 6) and family households

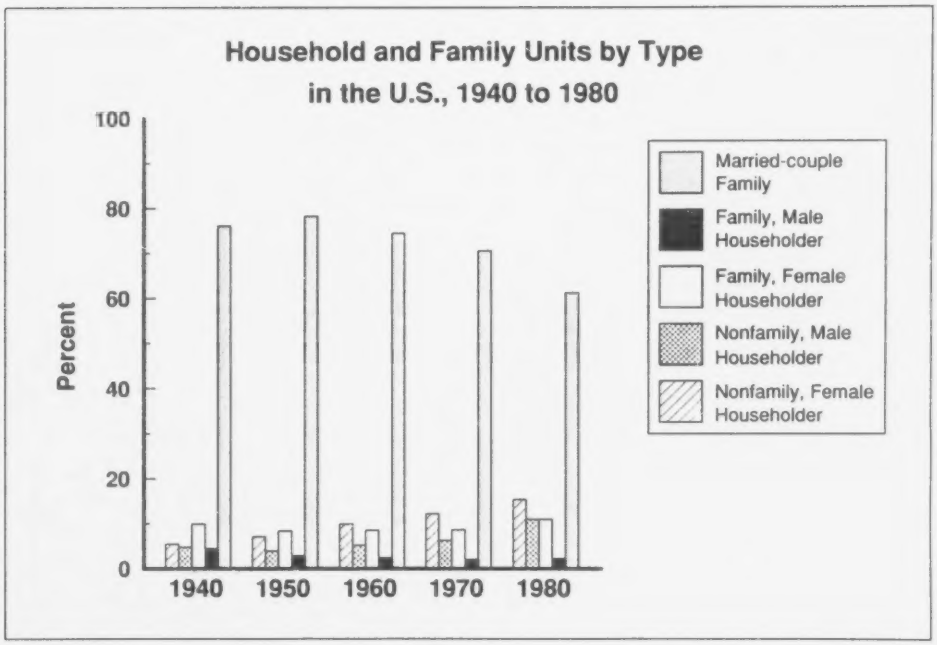


Figure 3

Household and Family Units by Type in the United States, 1940 to 1980

Source: U.S. Bureau of the Census. Households, Families, Marital Status and Living Arrangements: March 1988, **Current Population Report**, Series P-20, No. 432.

with only one parent has increased, the percentage of persons who marry has declined, the age at first marriage has increased, and the proportion of divorced persons has increased. A recent report (March 1989) from the U.S. Census Bureau on marital status and living arrangements confirms these patterns. It states that the estimated median age at first marriage in 1989 was 26.2 years for men and 23.8 years for women; the comparable figures for 1970 were 23.2 and 20.8. Also, since 1970, the proportion of persons aged 25 to 29 who have never married has tripled for women and more than doubled for men. In addition, the proportion of children under 18 years of age who were living with both parents declined from 85 percent in 1970 to 73

percent in 1989. Each of these factors has implications for housing patterns.

Until the 1980s, the average household size in North Dakota was larger than that of the Nation. However, by 1989 the estimated household size for North Dakota was 2.56, lower than the 2.60 estimate for the Nation (Table 11). *Thus, the decreasing size of households in the State results in a greater increase in households than the increase in population might suggest.*

The proportion of persons remaining single and again becoming single after a divorce or death of a spouse increases household numbers relative to population size. Table 12 shows martial status in North Dakota from 1960 to 1980. *The most startling change in the State has been the increase in the number and percent of divorced persons. Between 1970 and 1980 alone, the increase was over 134 percent. This factor alone could account for an increase in households of up to 5,000.*

Finally, the racial and ethnic composition of a population affects the likely level and type of housing demand. This is because different racial and ethnic groups have different socioeconomic and cultural histories, leading to differences in income, education, family size, family-size preference and other characteristics.

Figure 4 shows the net worth of individuals in the U.S. by race in 1984. Differences in economic well-being are apparent both between and within the racial groups.

Table 11

Average Household Size in the United States and North Dakota, 1940-1989

Year	United States	North Dakota
1940	3.67	4.12
1950	3.37	3.76
1960	3.33	3.55
1970	3.14	3.22
1980	2.75	2.75
1989	2.60	2.56

Source: Decennial Census, 1970 and 1980; U.S. Bureau of the Census, "State Population and Household Estimates," P-25 #1058 **Current Population Reports**. Washington, DC: U.S. Government Printing Office (July 1989).

Table 12

Marital Status of the North Dakota Population, 1960-1980

Marital Status*	1960	1970	1980
Married	149,696	173,266	186,825
Single	113,821	131,435	132,174
Separated	2,022	2,310	2,757
Divorced	5,189	7,460	17,489
Widowed	28,654	32,061	34,405

*Marital status figures were reported by the Census Bureau for those persons 14 and older for 1960 and 1970, but for persons 15 and older in 1980.

Table 13 shows the average number of persons per household for North Dakota's major racial and ethnic groups in 1980. It also shows the percent of the population 25 and over who are high school graduates, the median household income, and the percent each group is of the total population of the State. The variation among the groups is dramatic on the social and economic factors presented in this table. The last column, "Percent of Total Population", places these differences in the perspective of the entire state population.

Even though the number of Blacks, American Indians and Hispanics have increased over the years, North Dakota still has a very homogeneous population. However, in areas where minority populations reside, differences in housing preferences, needs, and ability to pay are important factors to consider in planning for residential housing. Again, the importance of determining local demographic patterns and trends is apparent.

THE EFFECTS OF DEMOGRAPHIC FACTORS ON THE FUTURE HOUSING NEEDS IN NORTH DAKOTA

This section of the report summarizes the demographic factors presented in the first section of the report as they relate to North Dakota's future housing requirements.

Size of the Population

The population of the State is projected to decline slightly from its current level. Using population size as the only criteria of housing demand, the number of households would also be expected to decline.

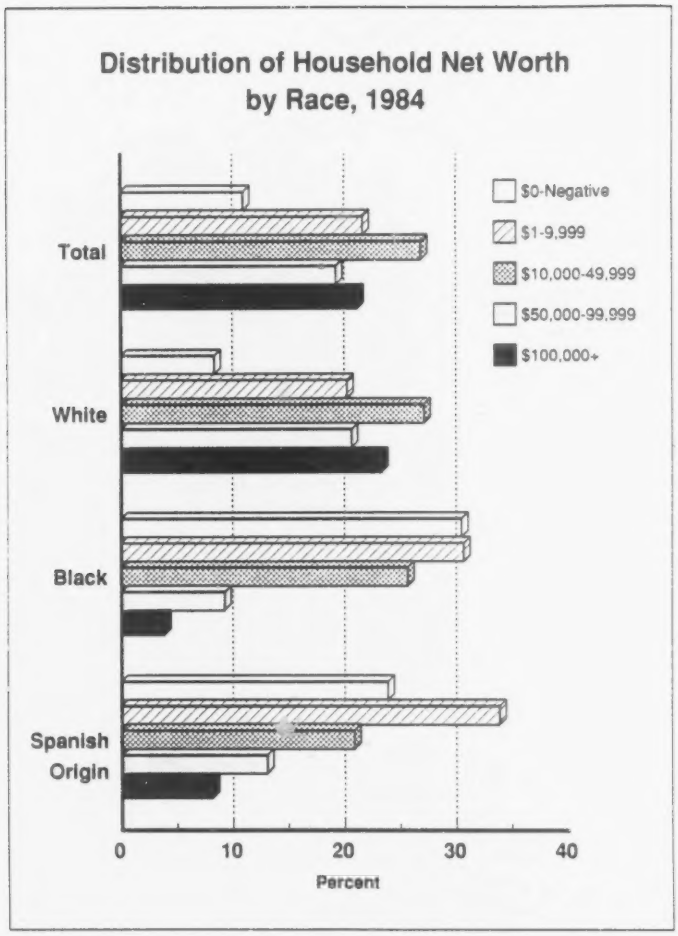


Figure 4

Distribution of Household Net Worth By Race, 1984

Source: U.S. Bureau of the Census. Household Wealth and Asset Ownership: 1984, **Current Population Reports**, Series P-70, No. 7, Table 4.

Table 13

Socioeconomic Characteristics of Major Racial/Ethnic Groups in North Dakota, 1980

Group	Persons per Household	Percent High School Graduates		Household Income	Percent of Total Population
		Males	Females		
Whites	2.71	64.0	69.4	$15,423	97.7
Blacks	2.90	95.9	86.9	13,537	0.1
American Indians	3.86	46.2	49.3	9,667	2.2
Spanish Origin	3.19	63.0	62.7	12,200	0.5

Source: U.S. Bureau of the Census, "General Social and Economic Characteristics," **1980 Census of Population and Housing**, Washington, D.C.: U.S. Bureau of the Census, 1983.

Source of Population Change

Population change in the State is projected to continue its pattern of outmigration and natural increase. Therefore, demand for housing based on population change will be small.

Structure of the Population

The age structure of the population is projected to change. A greater percentage of the State's population will be in the older age groups. Because household formation increases with age, the number of households will increase; also because the older age structure will affect the number of family versus nonfamily households, the State is expected to experience a greater number of family households in the future. The changing age structure will also affect the number of homeowners versus renters, with an increase in home ownership and decrease in rentership predicted.

Recent trends in the State point to a decrease in the size of households. Because each household is projected to have fewer people, the number of households is projected to increase, even with a smaller projected population.

One of the factors associated with smaller households is the increasing number of single or single-again persons in the State. This change in the marital composition of the population suggests that the demand for housing will increase.

Finally, the State is composed of a homogeneous population with little racial/ethnic diversity. Thus, socioeconomic factors usually associated with differential demands for housing and types of housing will influence future housing requirements in the State very little. However, where minority populations are a substantial proportion of the population, housing needs and preferences may vary.

In sum, multiple demographic factors--not just population size--influence the type and amount of housing required. Data on demographic trends for the area of interest are critical planning tools for determining housing markets.

Selected References

Coon, R.C., R.W. Rathge, G.A. Goreham, and F.L. Leistritz, **North Dakota Demographic Projection Model**. Fargo: Agricultural Experiment Station, North Dakota State University, 1988.

Murdock, S.H., and R.R. Hamm, **Demographic Factors in Real Estate: General Relationships and Trends**. College Station, Texas: Real Estate Center, 1988.

Rathge, R.W., C. Whittey, D. Nundahl, and S. Azam. **Revised Population Projections by Age and Gender for North Dakota, 1990-2000**. Fargo: Agricultural Experiment Station, North Dakota State University, 1990.

U.S. Bureau of the Census, **Census of Population and Housing**. Washington, DC: U.S. Government Printing Office, 1970 and 1980.

U.S. Bureau of the Census, **Historical Statistics of the United States, Colonial Times to 1970**. Bicentennial Edition, Part 2. Washington DC: U.S. Government Printing Office, 1975.

U.S. Bureau of the Census, "Household and Family Characteristics, Population Characteristics: March 1988," P-20 #437 **Current Population Report**. Washington, DC: U.S. Government Printing Office, 1989.

U.S. Bureau of the Census, "Households, Families, Marital Status, and Living Arrangements," P-20, No. 432, **Current Population Report**. Washington, DC: U.S. Government Printing OFfice, 1989.

U.S. Bureau of the Census, "Household Wealth and Asset Ownership," P-70, No. 7, Table 4, **Current Population Report**. Washington, DC: U.S. Government Printing Office, 1986.

U.S. Bureau of the Census, **Housing Data Resources**. Washington, DC: U.S. Government Printing Office, 1980.

U.S. Bureau of the Census, "Housing in America 1985/86," H-121, No. 19, **Current Housing Report**. Washington, DC: U.S. Government Printing Office, 1989.

U.S. Bureau of the Census, "State Population and Household Estimates," P-25 #1058, **Current Population Report**. Washington, DC: U.S. Government Printing Office, 1989.

Appendix A:

Population Projections

Appendix Table A1

Low Series Projections From the North Dakota Demographic Projection Model

Age	1990		1995		2000	
	Male	Female	Male	Female	Male	Female
0-4	19,747	18,654	18,631	17,599	18,037	17,038
5-9	18,417	17,299	18,108	17,010	17,084	16,048
10-14	26,785	24,904	19,070	17,800	18,750	17,503
15-19	33,868	30,388	34,688	30,657	26,939	23,681
20-24	35,241	29,819	34,877	29,737	35,703	29,998
25-29	26,659	24,272	27,960	23,732	27,601	23,654
30-34	25,235	23,541	23,477	20,927	24,655	20,452
35-39	24,823	21,607	23,041	21,171	21,387	18,747
40-44	21,770	19,451	24,747	21,576	22,963	21,140
45-59	16,928	15,695	21,090	18,331	23,973	20,333
50-54	12,928	12,916	15,366	14,646	19,132	17,105
55-59	11,887	12,720	12,045	12,087	14,316	13,706
60-64	13,155	13,594	10,985	12,141	11,131	11,537
65-69	11,906	12,862	11,653	12,483	9,731	11,148
70-74	10,204	11,784	10,017	11,582	9,804	11,241
75-79	7,874	10,868	7,755	10,447	7,613	10,267
80-84	4,962	8,797	5,292	9,376	5,212	9,013
85+	2,381	6,884	2,645	8,159	2,831	8,923
Subtotal	324,780	316,055	321,447	309,461	316,862	301,534
Total	640,835		630,908		618,396	

Appendix Table A2

High Series Projections From the North Dakota Demographic Projection Model

Age	1990		1995		2000	
	Male	Female	Male	Female	Male	Female
0-4	20,130	19,015	19,296	18,227	18,893	17,846
5-9	18,535	17,562	18,578	17,602	17,808	16,873
10-14	26,776	25,454	19,062	18,194	19,107	18,235
15-19	33,666	30,776	34,653	31,426	26,912	24,231
20-24	35,241	30,498	34,700	30,579	35,695	31,222
25-29	27,161	25,236	28,462	24,886	27,918	24,965
30-34	26,517	24,518	24,690	22,205	25,907	21,891
35-39	25,985	22,215	24,578	22,243	22,836	20,082
40-44	21,982	19,637	25,807	22,228	24,404	22,256
45-59	17,129	15,809	21,620	18,603	25,382	21,058
50-54	13,281	13,108	15,723	14,893	19,845	17,525
55-59	12,226	13,057	12,578	12,473	14,891	14,172
60-64	13,522	13,949	11,425	12,577	11,754	12,015
65-69	12,150	13,129	12,088	12,956	10,214	11,681
70-74	10,318	12,140	10,243	12,042	10,191	11,883
75-79	7,850	11,238	7,802	10,926	7,745	10,838
80-84	5,069	9,072	5,417	9,848	5,383	9,575
85+	2,434	6,956	2,697	8,363	2,891	9,304
Subtotal	329,972	323,369	329,419	320,271	327,776	315,652
Total	653,341		649,690		643,428	

Appendix B:

Data Sources

Appendix B Contents

Page

The U.S. Census Bureau B-1

Decennial Censuses B-1
Annual Housing Survey B-4
Current Housing and Construction Survey B-6

The U.S. Department of Housing and Urban Development B-6

Federal Home Loan Banks B-7

Local Public Sources B-7

Other Local Sources B-7

Private Sources B-8

Data Sources

Information about housing characteristics and trends is readily available at the national level from many sources. However, data on local-level housing characteristics and trends are usually limited and often out of data, if they are available at all.

In general, the major sources of housing data are the decennial censuses, the Annual Housing Survey, and the administrative records of such local city agencies as the assessor's office or the housing department. In addition, some useful data may be available from private sources; banks, utility companies, trade associations, and commercial research or data analysis firms are possible sources of housing data from the private sector.

This appendix provides a guide to sources of housing data. The sources listed are not intended to be inclusive of all possible sources; rather they are listed because of their general availability. In addition, this appendix, by listing sources of data, provides the basic spadework for readers interested in doing their own studies of housing markets or housing needs.

The U.S. Census Bureau

Decennial Censuses

Data available from the 1980 and 1990 decennial census provide a basis for developing many indicators of housing needs. The Census Bureau publishes volumes of information based on these counts of all persons and households in the United States. Information can be found for small areas such as census tracts, towns and counties, as well as for larger areas such as metropolitan areas, states and regions (see box at right).

Decennial censuses provide data to describe populations such as age, race, gender, marital status, income, and education. These censuses also provide data to describe housing conditions such as number of units, complete kitchen and bath facilities, tenure, value or rent, fuels, and heating equipment. The data from the decennial censuses are published in three major sets of reports:

- Population census reports
- Housing census reports
- Joint population and housing census reports

Hierarchy of Census Geography

United States
Region
Division
State
County
Township/other county division
Place
Census tract/block numbering area
Block group
Block

The text which follows provides a brief description of the printed reports. Although the numbering and nomenclature system varies from census-to-census, the information within the reports remains relatively standard. Where differences are known to occur between the 1980 and 1990 series, they are noted. The reports are described in the present tense, although the

reports based on the 1990 Census will not generally be available until 1992-1993.

Please note that data from the decennial censuses are taken either from the short form of the census questionnaire or the long form mailed to only a sample of the U.S. population. The short form is referred to as the 100 percent data and the long form is referred to as the sample data when describing the contents of the reports listed below.

The data described below appear in the printed version of the decennial census data. Data are also available on computer tape, microfiche and CD-ROM disks. For information about these media, contact the North Dakota Census Data Center (701 237-7980) or the U.S. Census Bureau (301 763-4100)

• ***Population Census Reports***

1. General Population Characteristics. These reports give detailed statistics on the age, sex, race, Hispanic origin, marital status, and household relationship characteristics of the total population. This information is presented for states, counties, places of 1,000 or more inhabitants in selected states, state parts of American Indian and Alaska Native areas, and summary geographic areas (separate volumes are provided from the 1990 data for American Indians, Alaska Native, metropolitan, and urbanized areas).

Preliminary release date for the 1990 volume: 1992

2. Social and Economic Characteristics. These reports are compiled from the sample data collected in the decennial censuses. Data are shown for states (including summaries for urban and rural), counties, places of 2,500 or more inhabitants, townships or other county divisions which have 2,500 or more inhabitants in selected states, and the state portion of American Indian and Alaska Native areas (separate reports are provided from the 1990 data on American Indian, Alaska Native, metropolitan, and urbanized areas). These reports include data items such as years of school completed, place of work, income, occupation, and industry.

Preliminary release date for the 1990 Census report: 1993

3. Population Subject Reports. Population subject report topics generally include migration, income, fertility, education, and employment. The geographic area is generally national, but some information is found for regions or other large geographic areas, and these reports are based on sample data.

Preliminary release date for the 1990 Census reports: 1993

• ***Housing Census Reports***

1. General Housing Characteristics. These reports provide detailed statistics on the number of units in a housing structure, the value and rent, the number of rooms, tenure, and vacancy characteristics. The reports are compiled from 100 percent data for states, counties, places of 1,000 or more inhabitants, townships of 1,000 or more inhabitants in selected states, state parts of American Indian and Alaska Native areas, and summary geographic areas (separate reports are provided for

American Indian, Alaska Native, metropolitan, and urbanized areas from the 1990 Census).

Preliminary release data for the 1990 volume: 1992

2. Detailed Housing Characteristics. These reports focus on the housing subjects collected from the sample form of the decennial censuses, and they show data for states (including summaries for urban and rural), counties, places of 2,500 or more inhabitants, townships of 2,500 or more inhabitants in selected states, and the state portion of American Indian and Alaska Native areas (separate reports are provided for American Indian, Alaska Native, metropolitan, and urbanized areas from the 1990 Census). Included are data on equipment, appliances and fuels, gross rent, year housing structure was built, units in structure, and so on.

Preliminary release date for the 1990 report: 1993

3. Housing Subject Reports. These special reports cover sample items such as the structural characteristics and space utilization in housing units. Data is presented at the national, regional or other large geographic area level.

Preliminary release for the 1990 Census reports: 1993

• ***Population and Housing Reports***

1. Summary Population and Housing Characteristics. This report provides total population and housing unit counts as well as summary statistics on age, sex, race, Hispanic origin, household relationships, units in structure, value and rent, number of rooms, tenure, and vacancy characteristics for local governments, including American Indian and Alaska Native areas.

Preliminary release date for the 1990 Census reports: 1991-92 (state reports) 1992 (U.S. summary)

2. Population and Housing Unit Counts. This report provides total population and housing unit counts (for 1990) and previous censuses. Data are provided for state, county, township and other census county divisions, place, metropolitan statistical area, urban area, and summary geographic areas (i.e., urban/rural, metropolitan/nonmetropolitan residence). The comparable 1980 report is *Number of Inhabitants*.

Preliminary release data for the 1990 Census reports: 1991-92 (state reports) 1992 (U.S. summary)

3. Population and Housing Characteristics for Census Tracts and Block Numbering Areas. This report shows data for most of the population and housing subjects included in the 1990 Census for census tracts and block numbering areas. Some of the tables are based on the 100 percent tabulation, others on the sample tabulations. The comparable 1990 report series was called *Census Tracts*.

Preliminary release date for the 1990 Census reports: 1992-93

4. Population and Housing Characteristics for Congressional Districts of the 103rd Congress. Population and housing data are provided for Congressional Districts as well as counties, places of 10,000 or more inhabitants, and minor

civil divisions (MCDs) such as townships of 10,000 or more inhabitants in selected States within each congressional district. Some of the data tables are sample based, others are 100 percent. The 1980 report was titled *Congressional Districts of the 98th Congress.*

Preliminary release date for the 1990 Census report: 1993

5. Summary Social, Economic, and Housing Characteristics. These reports provide sample population and housing data for local governments, including American Indian and Alaska Native areas.

Preliminary release date for the 1990 Census report: 1993

5. Summary Social, Economic, and Housing Characteristics. These reports provide sample population and housing data for local governments, including American Indian and Alaska Native areas.

Preliminary release date for the 1990 Census reports:
1992 (state reports)
1993 (U.S. summary)

Annual Housing Survey

Data on housing for selected Metropolitan Statistical Areas (MSAs) and for the nation are available from the Annual Housing Surveys (see Table B1 on page B-4). Reports from the surveys include data on:

- General housing characteristics, such as tenure, race, occupancy status, rooms, units within structure, and household composition; characteristics of newly constructed housing units, units removed from the housing inventory, and occupied mobile homes and trailers

- Indicators of housing and neighborhood quality with information pertaining to structural characteristics of the dwelling unit (water leakage, cracks/holes, etc.) as well as evaluations by respondents about their housing units, neighborhoods, and neighborhood services

- Financial characteristics of the housing inventory, such as cross-tabulations of various housing and demographic characteristics by income of the families and primary individuals, value of owner-occupied units, and the gross rent of renter-occupied units

- Housing and household characteristics of recent movers who have moved into their present units during the previous 12 months, including such items as the reason for the move, and characteristics of the present unit compared to those of the previous unit, including location in the central city of the MSA

- Urban and rural characteristics for the United States and regions, including most of the general housing characteristics and indicators of housing and neighborhood quality presented in other reports, classified by urban and rural residence

- Financial characteristics by indicators of housing and neighborhood quality, cross-classifying housing quality items by value, rent, and income categories

National-level data are published annually in a series of reports numbered H-150, plus occasional H-151 special reports. The MSA data are published in the H-170 series,

Appendix Table B1

Current Housing and Construction Reports from the Census Bureau

Title	Series No.	Geographic Detail Below U.S. Level	Frequency of Issue
Annual Housing Survey	H-150	Regions, inside/outside MSAs	Annually
Annual Housing Survey	H-151	Regions, inside/outside MSAs	Occasionally
Annual Housing Survey	H-170	15 to 20 selected MSAs	Annually
Annual Housing Survey	H-171	15 to 20 selected MSAs	Occasionally
Housing Vacancies	H-111	Regions	Quarterly/annually
Market Absorption of Apartments	H-130	Regions	Quarterly/annually
Housing Starts	C-20	Regions, inside/outside MSAs	Monthly
New Residential Construction in Standard Metropolitan Statistical Areas	C-21	20 selected MSAs	Quarterly
Housing Completions	C-22	Regions, inside/outside MSAs	Monthly
New One-Family Houses Sold and for Sale	C-25	None	Monthly
Characteristics of New Housing	C-25	Regions	Annually
Price Index of New One-Family Houses Sold	C-27	Regions	Quarterly
Value of New Construction Put in Place	C-30	None Regions/divisions	Monthly Annually
Housing Units Authorized by Building Permits and Public Contracts	C-40	Regions, divisions States, MSAs, permit-issuing places	Monthly Annually
Housing Units Authorized for Demolition in Permit-Issuing Places	C-45	MSAs, selected cities with population of 50,000 or more	Annually
Residential Alterations and Repairs	C-50	None Regions	Quarterly Annually

with special reports designated as H-171.

Current Housing and Construction Surveys

Current information on housing characteristics, vacancies, and construction are available from Census Bureau surveys: the Housing Vacancy Survey, the Survey of Market Absorption, and several construction surveys. Data from these surveys are generally national and regional in scope, but are useful for examining general trends or for comparison purposes.

• The Housing Vacancy Survey produces data on rental and owner-occupied rates, the number of rooms, presence or absence of plumbing facilities, the number of units in the building, and the amount of rent or the current value of the vacant property. This data is published quarterly in a series called *Housing Vacancies* (H-111), presenting regional and national totals.

• The Survey of Market Absorption is based on a sample of apartment buildings completed. It is published in a quarterly and annual report series entitled *Market Absorption of Apartments* (H-130). Data are provided on such characteristics as rent, number of bedrooms, length of time units are vacant, and the presence of parking, swimming pools and other services. The quarterly reports are national in focus, but the annual report provides regional as well as national data.

• Current Construction Surveys provide related information on new housing units and new nonresidential construction. These surveys produce data on housing starts, sales, and completions (C-20, C-21, C-22); the value of all new construction C-30); residential alterations and repairs (C-50); mobile home placements (C-25); housing authorized for demolition (C-45); and the price index for new one-family houses sold (C-27). Reports are issued monthly, quarterly, and annually, with information generally available at the national and regional levels.

The U.S. Department of Housing and Urban Development

This department occasionally conducts its own surveys and produces studies of local housing markets. HUD offices are located around the country (e.g., Minneapolis-St. Paul, Kansas City, Omaha, Denver) and may be contacted for information about the following surveys.

• Family Income Distributions provide family income estimates (medial and decile) for all MSAs and nonmetropolitan counties.

• Comprehensive Housing Market Analysis are conducted occasionally as indepth studies of local housing markets; in conjunction with this analysis, housing demand is projected for a three-year period.

• Mortgage Lending Activity Commitment Survey is a national survey providing monthly information about the number of mortgage transactions for construction and long-term loans for one-to-four family homes, multi-family properties, nonfarm residential properties, and farm properties. Monthly and

quarterly data are published in HUD news releases.

• Program Data is collected as part of it ongoing programs, such as for leased housing, Community Development Block Grants, and Federal Housing Administration (FHA). This data is occasionally made available in the form of computer printouts to area offices. In addition, HUD will process requests for tabulation of specific data. While some data would be of limited use to local housing studies, other data may be useful. For example, data on the number and characteristics of households receiving FHA mortgages at the local level may be of interest.

Federal Home Loan Banks

These banks, which make supplemental mortgage funds available to savings and loan institutions that are members of the Federal Home Loan Bank System, sponsor surveys and conduct studies of local housing markets. The principal source of data is the Postal Vacancy Survey in which mail carriers report the number of existing and vacant units along the delivery route, as well as the number of homes under construction. Not all of the regional banks participate. Reports and unpublished data are generally made available upon request from the individual banks and the data is usually reported by zip code for metropolitan counties.

Local Public Sources

The availability of data from any agency varies from place to place. In general, the larger (more populous) the area, the more likely one or more city/county agencies will have data useful to a study of local housing. Offices or agencies likely to have data related to housing or housing needs are community development agencies, housing and planning agencies, the tax assessor's office, any agency established to oversee public housing, regional planning agencies, and the tax collector's office. County or city health departments may have data on code violations or a human services office may have records on mortgage and lending as it related to equal opportunity.

Other Local Sources

Several local organizations often have information about the housing stock and housing conditions in their area.

• Utility companies sometimes have information on their billing records that provides information about energy use, vacancies, abandonments, migration, and other aspects of housing conditions. Nearly every housing unit is serviced by gas, water, electric or telephone services. Although the availability of data and the data itself varies from area to area, determining what is available for your area of interest may be an important and rewarding effort.

• Chambers of Commerce occasionally conduct their own surveys or studies on various aspects of the housing market.

• Local real estate organizations generally keep track of home and commercial property sales of their member realtors. Data from this source would include total sales, average price, days on the market, and the list price. However, data may not be broken down by small areas such as neighborhoods and would require an investment in time to recompile. Other local real estate organizations (independent brokers, National Association of Real Estate Boards, etc.) may also be sources of data.

• Banks and other financial institutions, in accordance with the federal Home Mortgage Disclosure Act, are required to make information available on the number and value of loans granted by census tract in metropolitan areas and by ZIP code outside MSAs. However, data must be obtained from each individual institution.

• Universities may have researchers who have conducted their own surveys or have researched various aspects of the housing market or neighborhood dynamics. Contact economic research departments, urban studies or planning programs or campus information offices.

• Local trade associations (appraisers, apartment building managers, contractors, etc.) involved in housing or the housing market may provide useful information on housing construction, vacancies, or values.

Private Sources

Many national-level associations or private sources provide information about the national or local housing market. Often they charge for the information they provide.

In providing the list of organizations in this section, the Census Data Center does not intend endorsement of the organizations or evaluation of the data collection methods/ statistical procedures used. As with any data source, users should check the definitions, methodology, geographic coverage, and limitations of the data before using the statistics.

• Chicago Title and Trust Company conducts an annual survey of recent home buyers, using an independent national research organization. It includes more than 1,500 interviews in 18 representative markets (metropolitan areas). Data includes national, regional, and metropolitan-area tabulations for all buyers, first time buyers and repeat buyers. Reports are available upon request.

• F.W. Dodge provides monthly data on the dollar amount, floor area, and number of units of residential and nonresidential construction starts at the national, regional, state, and MSA level in the *Dodge Construction Potentials Bulletin*. Ten reports are issued each month, one for each of nine regions and one for the United States. This information is available on a subscription basis. For further information, contact a local office of the F.W. Dodge Division of McGraw

Hill Information Systems Company.

• Donnelley Marketing offers information on the number of households, mobility, median home value, average family income, and other demographic characteristics of the population at the city and tract levels. The data is based on the most recent census and updated through Donnelley's directory services and Dun and Bradstreet listings. Further information is available from Donnelley Marketing in Stanford, Connecticut.

• Manufactured Housing Institute, located in Arlington, Virginia, publishes a monthly report entitled *Mobile Home Shipments: Production Manufacturer Inventories*. This report shows the number of mobile homes produced and shipped by state and several regions.

• Mortgage Bankers Association of American reports state, regional, and national residential mortgage foreclosures and delinquencies. This information is available to nonmembers on a subscription basis from the Association's headquarters in Washington, D.C.

• Mortgage Insurance Companies of America, in its annual *Fact Book* provides national and state information on such items as median family income, sales prices, and the number of mortgages insured. The Association's headquarters is in Washington, D.C., and the data provided are derived from . . ber companies.

• National Association of Home Builders (NAHB) conducts various studies of the housing market, usually at the national and regional level, although selected metropolitan areas are sometimes reported as well. Listed below is the major report series of the Association. Individual reports or subscriptions can be purchased through their Economics and Research Division located in Washington, D.C.

- Economic Forecasts
NAHB forecasts housing starts by four regions monthly and for states on a quarterly basis.

- Economic News Notes
Four reports are included in this series: a *Monthly Report* presents articles and analysis of the economy and the housing market; *Metropolitan Housing Starts Forecast* provides historical quarterly and annual data as well as forecasts of single and multifamily starts for about 100 metropolitan areas; *Housing Starts Bulletin* is a monthly newsletter providing current and historical regional statistics from various government agencies on units under construction, completions, sales, unsold inventory, vacancy rates, sales prices, price and cost indices, price per square foot, and mortgage interest rates; and *Special Reports* provides analyses of special interest topics relating to pricing and availability of factors of housing production.

- Special Surveys
These one-time or recurring reports are produced from data collected on the Home Owners Warranty Program offered to buyers of new homes. Reports include the following:

Profile of the New Home Buyer, an annual report which contains national and regional data on selection criteria for a new home, on demographic and

economic characteristics of new home buyers, and on mortgage and utility payments.

Profile of the Condominium Buyer

Condominium Management and Operations

Kitchen Appliances and Other Equipment in New Homes

Characteristics of New Home Sold is an annual report of regional data on the sales price, type of home, presence and type of heating and air-conditioning, and structural characteristics of new homes.

Profile of the Home Builder

• National Association of Realtors produces several series of national and regional level reports:

- *Existing Home Sales*
These monthly reports contain data on the number and value of units sold, and the annual volume provides data on the number and value of units, including median and average sales price and sales and value by number of bedrooms.

- *Real Estate Market Outlook*
This monthly report provides projections of economic trends and forecasts of sales and prices in the real estate market.

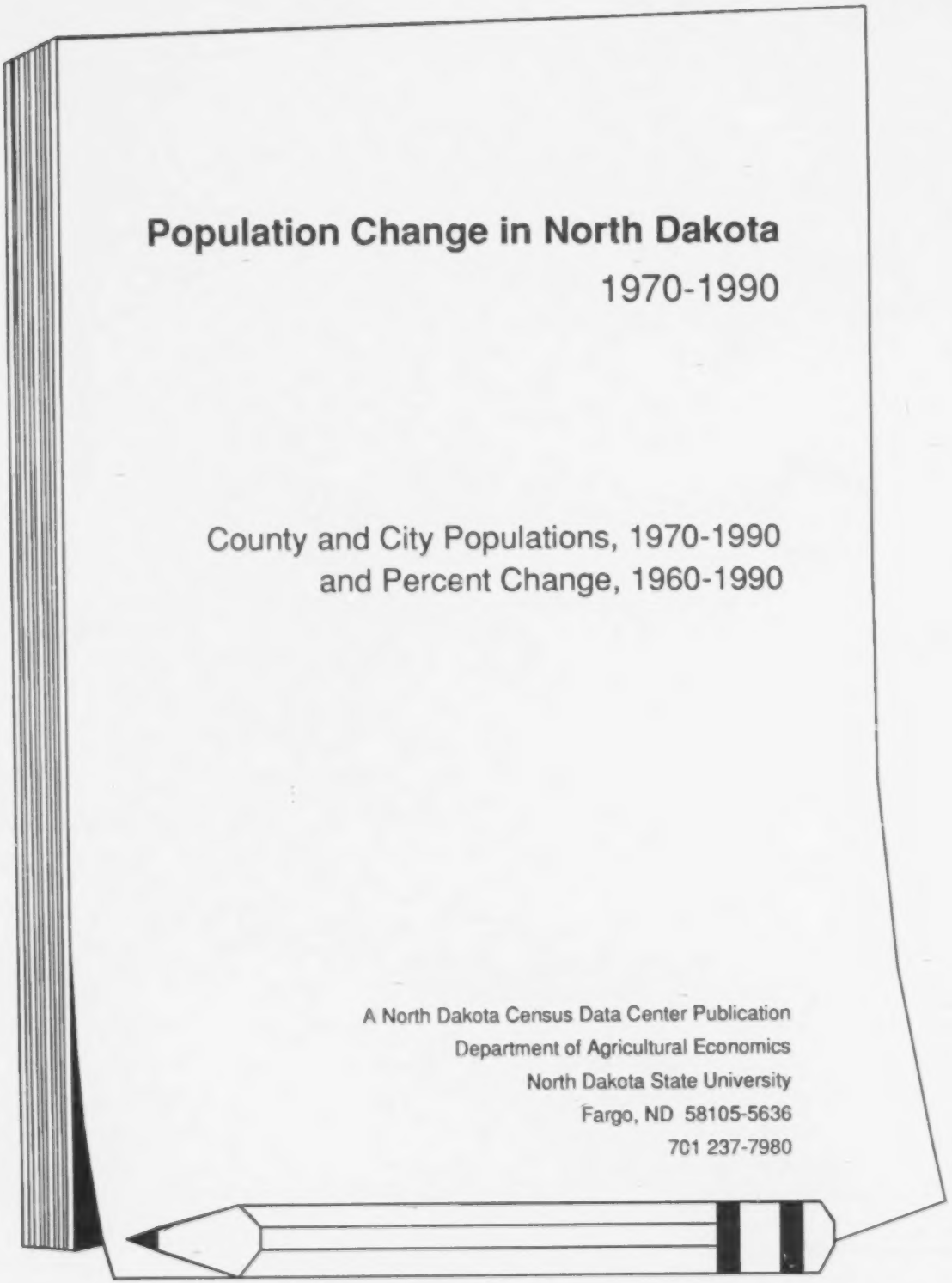
- *Status Report*
This monthly newsletter provides data on various real estate topics.

• R.L. Polk and Company produces computerized reports for cities where they have done door-to-door canvasses for their directories. Data include the number of housing units per tract, new construction, demolitions, vacancies, household size, and socioeconomic characteristics of the occupants. Information can be obtained from the Polk Company in Detroit, Michigan.

U3600 - 315-F

Report No. 15

April 1991



Population Change in North Dakota

1970-1990

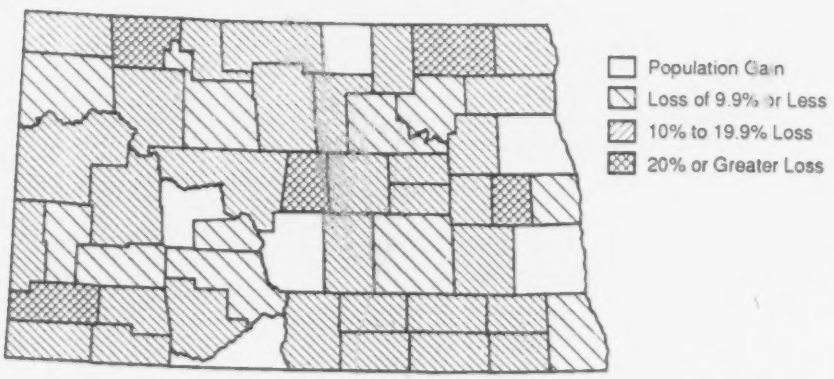
County and City Populations, 1970-1990
and Percent Change, 1960-1990

A North Dakota Census Data Center Publication
Department of Agricultural Economics
North Dakota State University
Fargo, ND 58105-5636
701 237-7980

North Dakota's Population Change, 1980-1990

The population of North Dakota declined by 2.3 percent or 14,917 people between 1980 and 1990. This is roughly equivalent to losing our state's seventh largest town, Mandan. Only 6 of the 53 counties in the state gained population during the 1980s (see Table 1). Three times that many counties grew during the previous decade. The widespread nature of North Dakota's residential decline is best illustrated in the fact that only 59 of the state's 366 incorporated places grew during the 1980s (see Table 2). As shown in Table 3, the cities with the largest percentage increase in population tended to be bedroom communities. Half of these rapidly growing towns were in Cass County.

Population Change by County, 1980-1990



Population Change in the State Planning Regions, 1970-1990

Planning Region	Population			Percent Change	
	1990	1980	1970	1980-90	1970-80
1	30,411	32,863	29,992	-7.5	9.6
2	90,695	96,764	100,360	-6.3	-3.6
3	45,293	84,411	49,670	-6.4	-2.5
4	98,171	97,103	93,888	1.1	3.4
5	142,644	132,394	118,101	7.8	12.1
6	66,294	75,965	78,965	-12.1	-4.5
7	124,097	124,693	104,207	-.5	19.7
8	41,175	45,098	42,609	-8.7	5.8

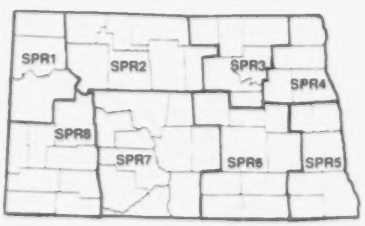


Table 1

North Dakota Population by County, 1970-1990

Area	Population			Percent Change		
	1990	1980	1970	1980-1990	1970-1980	1960-1970
Adams	3,174	3,584	3,832	-11.4	-6.5	-13.9
Barnes	12,545	13,960	14,669	-10.1	-4.8	-12.3
Benson	7,198	7,944	8,245	-9.4	-3.7	-12.6
Billings	1,108	1,138	1,198	-2.6	-5.0	-20.8
Bottineau	8,011	9,239	9,496	-13.3	-2.7	-16.1
Bowman	3,596	4,229	3,901	-15.0	8.4	-6.1
Burke	3,002	3,822	4,739	-21.5	-19.4	-19.5
Burleigh	60,131	54,811	40,714	9.7	34.6	19.7
Cass	102,874	88,247	73,653	16.6	19.8	10.0
Cavalier	6,064	7,636	8,213	-20.6	-7.0	-18.4
Dickey	6,107	7,207	6,976	-15.3	3.3	-14.4
Divide	2,899	3,494	4,564	-17.0	-23.4	18.0
Dunn	4,005	4,627	4,895	-13.4	-5.5	-22.9
Eddy	2,951	3,554	4,103	-17.0	-13.4	-16.9
Emmons	4,830	5,877	7,200	-17.8	-18.4	-14.9
Foster	3,983	4,611	4,832	-13.6	-4.6	-9.9
Golden Valley	2,108	2,391	2,611	-11.8	-8.4	-15.8
Grand Forks	70,683	66,100	61,102	6.9	8.2	25.5
Grant	3,549	4,274	5,009	-17.0	-14.7	-19.8
Griggs	3,303	3,714	4,184	-11.1	-11.2	-16.7
Hettinger	3,445	4,275	5,075	-19.4	-15.8	-19.7
Kidder	3,332	3,833	4,362	-13.1	-12.1	-19.0
LaMoure	5,383	6,473	7,117	-16.8	-9.0	-18.2
Logan	2,847	3,493	4,245	-18.5	-17.7	-20.9
McHenry	6,528	7,858	8,977	-16.9	-12.5	-19.1
McIntosh	4,021	4,800	5,545	-16.2	-13.4	-17.3
McKenzie	6,383	7,132	6,127	-10.5	16.4	-16.0
McLean	10,457	12,383	11,251	-15.6	10.1	-19.8
Mercer	9,808	9,404	6,175	4.3	52.3	-9.3
Morton	23,700	25,177	20,310	-5.9	24.0	-3.2
Mountrail	7,021	7,679	8,437	-8.6	-9.0	-16.3
Nelson	4,410	5,233	5,807	-15.7	-9.9	-17.4
Oliver	2,381	2,495	2,322	-4.6	7.5	-11.0
Pembina	9,238	10,399	10,728	-11.2	-3.1	-17.1
Pierce	5,052	6,166	6,323	-18.1	-2.5	-14.5
Ramsey	12,681	13,048	12,915	-2.8	1.0	-3.9
Ransom	5,921	6,698	7,102	-11.6	-5.7	-12.1
Renville	3,160	3,608	3,828	-12.4	-5.7	-18.5
Richland	18,148	19,207	18,089	-5.5	6.2	-3.9
Rolette	12,772	12,177	11,549	4.9	5.4	8.5
Sargent	4,549	5,512	5,937	-17.5	-7.2	-13.4
Sheridan	2,148	2,819	3,232	-23.8	-12.8	-25.7
Sioux	3,761	3,620	3,632	3.9	-0.3	-0.8
Slope	907	1,157	1,484	-21.6	-22.0	-21.6
Stark	22,832	23,697	19,613	-3.7	20.8	6.3
Steele	2,420	3,106	3,749	-22.1	-17.2	-20.6
Stutsman	22,241	24,154	23,550	-7.9	2.6	-6.3
Towner	3,627	4,052	4,645	-10.5	-12.8	-17.4
Traill	8,752	9,624	9,571	-9.1	0.6	-9.6
Walsh	13,840	15,371	16,251	-10.0	-5.4	-9.7
Ward	57,921	58,392	58,560	-.8	-.3	24.4
Wells	5,864	6,979	7,847	-16.0	-11.1	-15.0
Williams	21,129	22,237	19,301	-5.0	15.2	-12.5
North Dakota	**638,800**	**652,717**	**617,792**	**-2.1**	**5.7**	**-2.3**

Source: U.S. Bureau of the Census, Decennial Censuses, 1970, 1980, 1990.

Table 2

North Dakota Population, Cities and Towns, 1970-1990

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
ABERCROMBIE	252	260	262	-3	-1	7
ADAMS	248	303	284	-18	7	-21
ALAMO	69	122	124	-43	-2	-32
ALEXANDER	216	358	208	-40	72	-23
ALICE	62	62	83	0	-25	-33
ALMONT	117	146	109	-20	34	-43
ALSEN	113	169	201	-33	-16	-12
AMBROSE	48	60	109	-20	-45	-50
AMENIA	82	93	80	-12	16	-32
AMIDON	24	43	54	-44	-20	-36
ANAMOOSE	277	355	401	-22	-11	-20
ANETA	314	341	376	-8	-9	-17
ANTLER	74	101	135	-27	-25	-36
ARDOCH	49	78	70	-37	11	-34
ARGUSVILLE	161	147	118	10	25	0
ARNEGARD	122	193	141	-37	37	-38
ARTHUR	400	445	412	-10	8	27
ASHLEY	1052	1192	1236	-12	-4	-13
AYR	19	42	48	-55	-13	-41
BALFOUR	33	51	93	-35	-45	-42
BALTA	79	139	133	-43	5	-19
BANTRY	16	28	40	-43	-30	-57
BARNEY	79	70	81	13	-14	-30
BARTON	24	38	34	-37	12	-58
BATHGATE	75	67	133	12	-50	-24
BEACH	1205	1381	1408	-13	-2	-4
BELFIELD	887	1274	1130	-30	13	6
BENEDICT	52	68	72	-24	-6	-44
BERGEN	12	24	24	-50	0	-54
BERLIN	32	57	76	-44	-25	-3
BERTHOLD	409	485	398	-16	22	-8
BERWICK	.	22	33	.	-33	-41
BEULAH	3363	2908	1344	16	116	2
BINFORD	233	293	242	-20	21	-7
BISBEE	227	257	305	-12	-16	-21
BISMARCK	49256	44485	34703	11	28	25
BOTTINEAU	2598	2829	2760	-8	3	6
BOWBELLS	498	587	584	-15	1	-15
BOWDON	196	220	229	-11	-4	-12
BOWMAN	1741	2071	1762	-16	18	2
BRADDOCK	56	86	106	-35	-19	-25
BRIARWOOD	88	47	.	87	.	.
BRINSMADE	21	54	36	-61	50	-67
BROCKET	81	74	95	9	-22	-38
BUCHANAN	40	83	.	52	.	.

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
BUCYRUS	22	32	42	-31	-24	-30
BUFFALO	204	226	241	-10	-6	3
BURLINGTON	995	762	247	31	209	-6
BUTTE	129	157	193	-18	-19	-25
BUXTON	343	336	235	2	43	-27
CALIO	43	60	75	-28	-20	-26
CALVIN	27	61	78	-56	-22	-25
CANDO	1564	1496	1512	5	-1	-3
CANTON CITY	64	68	81	-6	-16	-38
CARPIO	178	244	215	-27	13	8
CARRINGTON	2267	2641	2491	-14	6	2
CARSON	383	469	466	-18	1	-7
CASSELTON	1601	1661	1485	-4	12	7
CATHAY	54	66	110	-18	-40	0
CAVALIER	1508	1505	1381	0	9	-3
CAYUGA	60	75	116	-20	-35	-41
CENTER	826	900	619	-8	45	30
CHRISTINE	140	147	.	-5	.	.
CHURCHS FERRY	118	139	139	-15	0	-14
CLEVELAND	121	130	128	-7	2	-24
CLIFFORD	51	51	84	0	-39	-23
COGSWELL	184	227	203	-19	12	-33
COLEHARBOR	88	150	112	-41	34	-47
COLFAX	80	101	70	-21	44	-29
COLUMBUS	223	325	465	-31	-30	-31
CONWAY	24	33	57	-27	-42	-15
COOPERSTOWN	1247	1308	1485	-5	-12	4
COURTENAY	70	110	125	-36	-12	-26
CRARY	145	139	150	4	-7	-23
CROSBY	1312	1469	1545	-11	-5	-12
CRYSTAL	199	256	272	-22	-6	-27
DAVENPORT	218	195	147	12	33	3
DAWSON	78	144	131	-46	10	-36
DAZEY	129	143	128	-10	12	-43
DEERING	99	85	75	16	13	-36
DES LACS	216	212	197	2	8	6
DEVILS LAKE	7782	7442	7078	5	5	12
DICKEY	53	74	118	-28	-37	-17
DICKINSON	16097	15924	12405	1	28	24
DODGE	135	199	121	-32	64	-46
DONNYBROOK	106	139	163	-24	-15	-17
DOUGLAS	93	112	144	-17	-22	-31
DRAKE	361	479	636	-25	-25	-15
DRAYTON	961	1082	1095	-11	-1	16
DUNN CENTER	128	170	107	-25	59	-57

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
DUNSEITH	723	625	811	16	-23	-20
DWIGHT	83	72	93	15	-23	-8
EDGELEY	680	843	888	-19	-5	-10
EDINBURG	284	300	315	-5	-5	-5
EDMORE	329	416	398	-21	5	-2
EGELAND	103	112	96	-8	17	-49
ELGIN	765	930	839	-18	11	-11
ELLENDALE	1798	1967	1517	-9	30	-16
ELLIOT	32	44	50	-27	-12	-19
EMERADO	483	596	515	-19	16	57
ENDERLIN	997	1151	1343	-13	-14	-16
EPPING	64	104	140	-38	-26	-7
ESMOND	196	337	416	-42	-19	-1
FAIRDALE	76	97	102	-22	-5	-19
FAIRMOUNT	427	480	412	-11	17	-18
FARGO	74111	61383	53365	21	15	14
FESSENDEN	655	761	815	-14	-7	-11
FINGAL	138	151	166	-9	-9	-13
FINLEY	543	718	809	-24	-11	0
FLASHER	317	410	467	-23	-12	-9
FLAXTON	121	182	286	-34	-36	-24
FORBES	56	84	88	-33	-5	-36
FORDVILLE	299	326	361	-8	-10	-2
FOREST RIVER	148	152	169	-3	-10	-12
FORMAN	586	629	596	-7	6	12
FORT RANSOM	111	99	.	12	.	.
FORT YATES	183	771	1153	-76	-33	.
FORTUNA	53	98	216	-46	-55	17
FREDONIA	66	82	100	-20	-18	-29
FRONTIER	218	160	.	36	.	.
FULLERTON	94	107	110	-12	-3	-39
GACKLE	450	456	470	-1	-3	-10
GALESBURG	161	165	134	-2	23	-19
GARDENA	41	66	84	-38	-21	-26
GARDNER	85	94	96	-10	-2	-10
GARRISON	1530	1830	1614	-16	13	-10
GASCOYNE	22	23	34	-4	-32	-32
GILBY	262	283	268	-7	6	-5
GLADSTONE	224	317	222	-29	43	20
GLEN ULLIN	927	1125	1070	-18	5	-12
GLENBURN	439	454	381	-3	19	5
GLENFIELD	118	164	127	-28	29	-2
GOLDEN VALLEY	239	287	235	-17	22	-18
GOLVA	101	101	104	0	-3	-36
GOODRICH	192	288	300	-33	-4	-23

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
GRACE CITY	108	94	.	15	.	.
GRAFTON	4840	5293	5946	-9	-11	1
GRAND FORKS	49425	43765	39008	13	12	13
GRANDIN	213	210	187	1	12	27
GRANO	9	6	4	50	50	-71
GRANVILLE	236	281	282	-16	-0	-30
GREAT BEND	108	113	86	-4	31	-48
GRENORA	261	362	401	-28	-10	-10
GWINNER	585	725	623	-19	16	157
HAGUE	109	127	146	-14	-13	-26
HALLIDAY	288	355	413	-19	-14	-19
HAMBERG	19	41	51	-54	-20	-20
HAMILTON	74	109	110	-32	-1	-49
HAMPDEN	89	126	114	-29	11	-28
HANKINSON	1038	1158	1125	-10	3	-12
HANKS	11	10	13	10	-23	-83
HANNAFORD	204	201	244	1	-18	-12
HANNAH	49	90	145	-46	-38	-43
HANSBORO	20	43	49	-53	-12	-66
HARVEY	2263	2527	2361	-10	7	-0
HARWOOD	590	326	.	81	.	.
HATTON	800	787	808	2	-3	-6
HAVANA	124	148	156	-16	-5	-24
HAYNES	37	58	53	-36	9	-52
HAZELTON	240	266	374	-10	-29	-17
HAZEN	2818	2365	1240	19	91	1
HEBRON	888	1078	1103	-18	-2	-18
HETTINGR	1574	1739	1655	-9	5	-6
HILLSBORO	1488	1600	1309	-7	22	2
HOOPLE	310	350	330	-11	6	-1
HOPE	281	406	364	-31	12	-7
HORACE	662	494	276	34	79	55
HOVE MOBILE PK	0	3	.	***	.	.
HUNTER	341	369	362	-8	2	-19
HURDSFIELD	92	113	139	-19	-19	-24
INKSTER	95	135	198	-30	-32	-30
JAMESTOWN	15571	16280	15385	-4	6	1
JUD	84	118	110	-29	7	-29
KARLSRUHE	143	164	172	-13	-5	-22
KATHRYN	72	95	109	-24	-13	-23
KENMARE	1214	1456	1515	-17	-4	-11
KENSAL	191	210	263	-9	-20	-21
KIEF	24	36	46	-33	-22	-53
KILLDEER	722	790	615	-9	28	-20
KINDRED	569	568	495	0	15	-15

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
KNOX	45	69	104	-35	-34	-15
KRAMER	51	84	125	-39	-33	-29
KULM	514	570	625	-10	-9	-6
LAKOTA	898	963	964	-7	-0	-10
LAMOURE	970	1077	951	-10	13	-11
LANDA	38	62	61	-39	2	-45
LANGDON	2241	2335	2182	-4	7	1
LANKIN	152	175	221	-13	-21	-27
LANSFORD	249	294	296	-15	-1	-23
LARIMORE	1464	1524	1469	-4	4	-14
LARSON	26	21	35	24	-40	-44
LAWTON	63	101	123	-38	-18	-23
LEAL	35	45	41	-22	10	-41
LEEDS	542	678	626	-20	8	-21
LEHR	191	254	287	-25	-11	-25
LEITH	43	59	92	-27	-36	-8
LEONARD	310	289	221	7	31	-5
LIDGERWOOD	799	971	1000	-18	-3	-7
LIGNITE	242	332	354	-27	-6	-0
LINCOLN	1132	656	.	73	.	.
LINTON	1410	1561	1695	-10	-8	-7
LISBON	2177	2283	2090	-5	9	-0
LITCHVILLE	205	251	294	-18	-15	-15
LOMA	27	39	85	-31	-54	325
LORAINE	15	21	33	-29	-36	-39
LUDDEN	41	47	44	-13	7	-25
LUVERNE	41	65	84	-37	-23	-23
MADDOCK	559	677	708	-17	-4	-4
MAKOTI	145	199	159	-27	25	-26
MANDAN	15177	15513	11093	-2	40	5
MANTADOR	77	76	95	1	-20	-3
MANVEL	333	308	265	8	16	-15
MAPLETON	682	306	219	123	40	22
MARION	169	214	215	-21	-0	-30
MARMARTH	144	190	247	-24	-23	-23
MARTIN	117	114	120	3	-5	-18
MAX	301	330	301	-9	10	-27
MAXBASS	123	141	174	-13	-19	-20
MAYVILLE	2092	2255	2554	-7	-12	18
MAZA	12	21	20	-43	370	-35
MCCLUSKY	492	658	664	-25	-1	-12
MCHENRY	85	113	152	-25	-26	-2
MCVILLE	559	626	583	-11	7	6
MEDINA	387	521	488	-26	7	-10
MEDORA	101	94	129	7	4	-3

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
MERCER	104	134	132	-22	2	-14
MERRICOURT	9	17	22	-47	-23	-67
MICHIGAN	413	502	478	-18	5	6
MILNOR	651	716	645	-9	11	-2
MILTON	133	195	198	-32	-2	-25
MINNEWAUKAN	401	461	496	-13	-7	18
MINOT	34544	32843	32290	5	2	6
MINTO	560	592	636	-5	-7	-1
MOHALL	931	1049	950	-11	10	-1
MONANGO	53	59	112	-10	-47	-16
MONTEPELIER	82	96	116	-15	-17	20
MOORETON	193	216	158	-11	37	-4
MOTT	1019	1315	1368	-23	-4	-6
MOUNTAIN	134	156	146	-14	7	-33
MUNICH	310	300	249	3	20	17
MYLO	20	31	51	-35	-39	-50
NAPOLEON	930	1103	1036	-16	6	-4
NECHE	434	471	451	-8	4	-17
NEKOMA	63	102	84	-38	21	-41
NEW ENGLAND	663	825	906	-20	-9	-17
NEW LEIPZIG	326	352	354	-7	-1	-9
NEW ROCKFORD	1604	1791	1969	-10	-9	-10
NEW SALEM	909	1081	943	-16	15	-4
NEW TOWN	1388	1335	1428	4	-7	-10
NEWBURG	104	151	125	-31	21	-21
NIAGARA	73	76	115	-4	-34	-27
NOME	67	67	103	0	-35	-29
NOONAN	231	283	403	-18	-30	-36
NORTH RIVER	68	65	.	5	.	.
NORTHWOOD	1166	1240	1189	-6	4	-1
OAKES	1775	2112	1742	-16	21	6
OBERON	103	150	151	-31	-1	-39
OMEMEE	.	10	5	.	100	-55
ORISKA	103	125	128	-18	-2	-14
OSNABROCK	214	222	255	-4	-13	-12
OVERLY	25	25	28	0	-11	-57
OXBOW	100	28	.	257	.	.
PAGE	266	329	367	-19	-10	-15
PALERMO	95	97	146	-2	-34	-22
PARK RIVER	1725	1844	1680	-6	10	-7
PARSHALL	943	1059	1246	-11	-15	2
PEKIN	101	101	120	0	-16	-33
PEMBINA	642	673	741	-5	-9	19
PERTH	22	20	44	10	-55	-40
PETERSBURG	219	230	266	-5	-14	-2

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
PETTIBONE	93	127	173	-27	-27	-16
PICK CITY	203	182	119	12	53	18
PILLSBURY	31	46	50	-33	-8	-34
PINGREE	61	88	76	-31	16	-50
PISEK	130	156	154	-17	1	-13
PLAZA	193	222	291	-13	-24	-24
PORTAL	192	238	251	-19	-5	-28
PORTLAND	602	627	534	-4	17	-12
POWERSLAKE	408	466	523	-12	-11	-17
PRAIRIE	49	76	.	-36	.	.
RAWSON	9	12	10	-25	20	-64
RAY	603	766	776	-21	-1	-26
REEDER	252	355	306	-29	16	-5
REGAN	51	71	74	-28	-4	-29
REGENT	268	297	344	-10	-14	-11
REILES ACRES	210	191	.	10	.	.
REYNOLDS	299	309	236	-3	31	-12
RHAME	186	222	206	-16	8	-19
RICHARDTON	625	699	799	-11	-13	1
RIVERDALE	283	344	.	-18	.	.
RIVERSIDE	.	465	104	.	347	12
ROBINSON	87	129	125	-33	3	-19
ROCKLAKE	221	287	270	-23	6	-23
ROGERS	69	68	96	1	-29	-19
ROLETTE	623	667	579	-7	15	10
ROLLA	1286	1538	1458	-16	5	4
ROSS	61	104	125	-41	-17	-25
RUGBY	2909	3335	2889	-13	15	-3
RUSO	8	12	15	-33	-20	-52
RUSSELL	14	18	14	-22	29	-44
RUTLAND	212	250	225	-15	11	-27
RYDER	121	158	211	-23	-25	-20
S HEART	322	294	132	10	123	.
SANBORN	164	237	255	-31	-7	-3
SARLES	86	111	148	-23	-25	-34
SAWYER	319	417	373	-24	12	-4
SCRANTON	294	415	360	-29	15	1
SELFRIDGE	242	273	346	-11	-21	-7
SENTINEL	79	86	125	-8	-31	-22
SHARON	119	166	201	-28	-17	-20
SHELDON	149	173	192	-14	-10	-13
SHERWOOD	286	294	369	-3	-20	3
SHEYENNE	272	307	362	-11	-15	-14
SIBLEY	41	21	20	95	5	-9
SOLEN	92	138	180	-33	-23	.

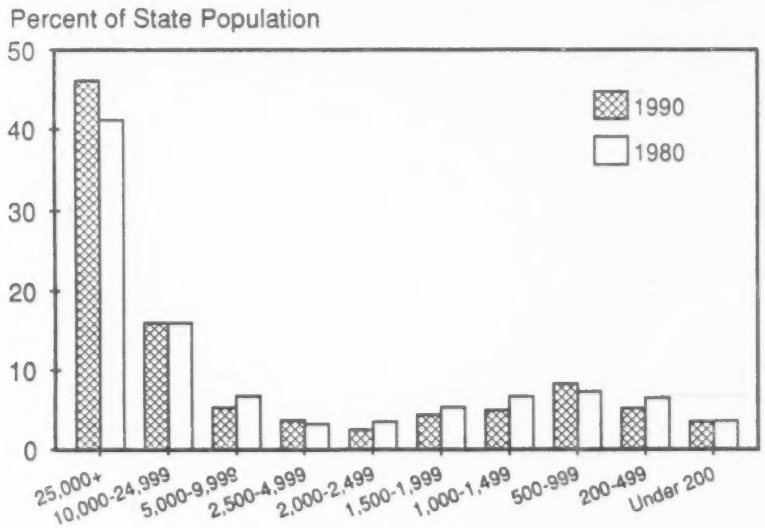
Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
SOURIS	97	122	151	-20	-19	-29
SPIRITWOOD	61	50	.	22	.	.
SPRING BROOK	29	52	27	-44	93	-23
ST JOHN	368	401	367	-8	9	-13
ST THOMAS	444	528	508	-16	4	-23
STANLEY	1371	1631	1581	-16	3	-12
STANTON	517	623	517	-17	21	26
STARKWEATHER	197	210	193	-6	9	-13
STEELE	762	796	696	-4	14	-18
STRASBURG	553	623	642	-11	-3	5
STREETER	161	264	324	-39	-19	-34
SURREY	856	999	361	-14	177	17
SYKESTON	167	193	232	-13	-17	-2
TAPPEN	239	271	294	-12	-8	-10
TAYLOR	163	239	162	-32	48	-25
THOMPSON	930	785	291	18	170	0
TIOGA	1278	1597	1667	-20	-4	-20
TOLLEY	79	103	163	-23	-37	-14
TOLNA	230	241	247	-5	-2	-15
TOWER CITY	233	293	289	-20	1	-4
TOWNER	669	867	870	-23	-0	-8
TURTLE LAKE	681	802	712	-15	13	-10
TUTTLE	160	202	216	-21	-6	-15
UNDERWOOD	976	1329	781	-27	70	-5
UPHAM	205	227	272	-10	-17	-18
VALLEY CITY	7163	7774	7843	-8	-1	0
VELVA	968	1101	1241	-12	-11	-7
VENTURIA	30	40	77	-25	-48	-48
VERONA	103	126	140	-18	-10	-14
VOLTAIRE	63	65	54	-3	20	-23
WAHPETON	8751	9064	7076	-3	28	20
WALCOTT	178	186	166	-4	12	.
WALES	48	74	116	-35	-36	-23
WALHALLA	1131	1429	1471	-21	-3	3
WARWICK	80	108	168	-26	-36	-18
WASHBURN	1506	1767	804	-15	120	-19
WATFORD CITY	1784	2119	1768	-16	20	-5
WEST FARGO	12287	10099	5161	22	96	55
WESTHOPE	578	741	705	-22	5	-14
WHEELOCK	23	34	21	-32	62	-74
WHITE EARTH	73	98	128	-26	-23	-38
WILDROSE	193	214	235	-10	-9	-35
WILLISTON	13131	13336	11280	-2	18	-5
WILLOW CITY	281	329	403	-15	-18	-18
WILTON	728	950	695	-23	37	-6

Table 2 Cont'd

Place	Population			Percent Change		
	1990	1980	1970	1980-90	1970-80	1960-70
WIMBLEDON	275	330	337	-17	-2	-16
WING	208	220	223	-5	-1	-26
WISHEK	1171	1345	1275	-13	5	-1
WOLFORD	56	76	81	-26	-6	-40
WOODWORTH	102	137	139	-26	-1	-37
WYNDMERE	501	550	516	-9	7	-20
YORK	35	69	102	-49	-32	-31
ZAP	287	511	271	-44	89	-20
ZEELAND	197	253	313	-22	-19	-27

North Dakota Population by City Size, 1980 and 1990



North Dakota's Top Ten Cities, Ranked by

1990 Population Size		1980-1990 Percent Increase		1980-1990 Numerical Change	
Fargo	74,111	Oxbow	257%	Fargo	12,728
Grand Forks	49,425	Mapleton	123	Grand Forks	5,660
Bismarck	49,256	Sibley	95	Bismarck	4,771
Minot	34,544	Briarwood	87	West Fargo	2,188
Dickenson	16,097	Harwood	81	Minot	1,701
Jamestown	15,571	Lincoln	73	Lincoln	476
Mandan	15,177	Grano	50	Beulah	455
Williston	13,131	Frontier	36	Hazen	453
West Fargo	12,287	Horace	34	Mapleton	376
Wahpeton	8,751	Burlington	31	Devils Lake	340